

132
PAGES

Science Fiction

MAY
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QUARTERLY

**NO WAR
TOMORROW!**

FEATURE NOVEL
by Wallace West

**THE DEADLY
THINKERS**

FEATURE NOVEL
by William Gray Boyer

**RIGHTEOUS
PLAGUE**

by Robert Abernathy

**ATOMIC
BONANZA**

by George
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Science Fiction QUARTERLY

May
1951

132 PAGES OF NEW STORIES — NO REPRINTS!

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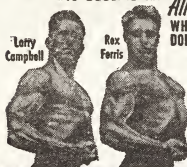
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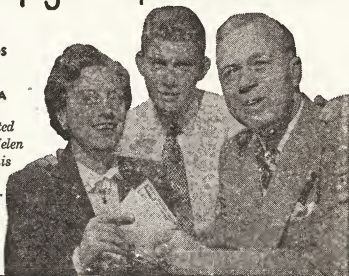
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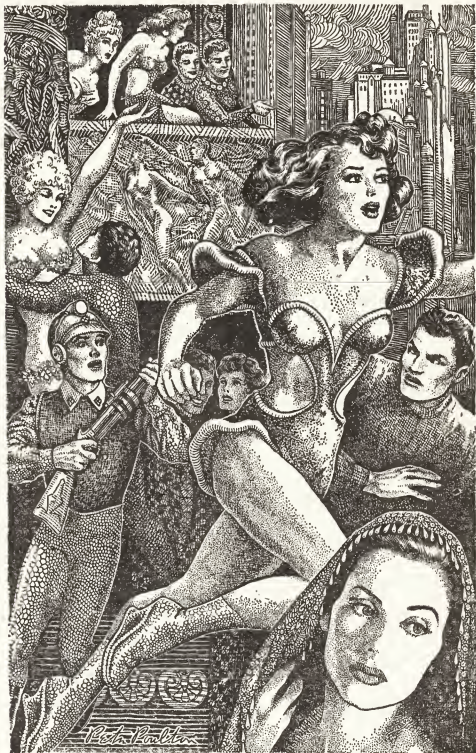
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Sadie hurled herself into the crowd, as a patrolman looked up, with gun raised.

NO WAR TOMORROW

● Feature Novel of Days to Come ●

War now would mean the destruction, not merely of one planet, but all the inhabitable worlds. But if a satisfactory substitute could be found . . .

by Wallace West



CAPTAIN FRANK SAGE, S.P., shouldered through the double safety doors of Moon Station Cafe, tossed his gear into a corner and sat down at the bar.

"'Lo, Tom," he said glumly. "Make it black coffee, ham and eggs and apple pie."

"You going right out?" Old Tom stopped his eternal polishing of glasses and gave his bald head a rub with the towel before switching on the hot plate. "I was hoping you could lay over a day and chew the fat."

"Not this time." Sage swished the coffee in its heavy cup to cool it. "I'm pushing off soon as they refuel my crate and calibrate the orbit; I've got troubles."

"Um!" The bartender squinted quizzically at his lean and lanky customer. "I hear the Big Shots are

big-shooting it again on Venus."

"Right! They're getting much too big for their britches these days; that's why I'm on this cursed jaunt."

"I sort of thought you and the Space Patrol and my gal Sadie had the Big Shots on the hip up there."

"Sadie!" The captain's voice was bitter as his coffee.

"You kids been fighting again?"

"Fighting again! We never stop. If Sadie weren't your daughter, Tom, and if I weren't so crazy about her..." Frank's dour face lit up briefly, "...I'd have sewed her in a sack and dumped her into the Central Sea long ago."

"When she was a kid I often used to think of doing the same thing." Tom juggled a sizzling order onto a plate and slid it across the bar. "What's the trouble this time?"

"It's just that United Stars won't use the Patrol to clean the Big Shots off Venus." The younger man attacked the victuals with a gusto which belied his mood. "We've got things pretty well under control at Venusport. The Incor Underground is growing stronger all over Wildoatia. One more push and..."

"...and Sadie agrees with United Stars?"

"That's right. I don't get it, Tom."

"Look, son." The old man leaned both hamlike hands on the bar and thrust his face within a few inches of the captain's. "Sadie's a mighty smart gal. If Wildoatia ever gets cleaned up, the Incors in the Underground will have to do the job themselves. The Patrol's work is to police Venusport and see that tender-foot Incors get an even break until they head into the bush."

"But why, Tom? Confound it..."

"Didn't you learn at school," the bartender interrupted, "that the state of Wildoatia is the safety valve for United Stars? The people who go there voluntarily—and the ones who are sent there—don't want to live under a decent government. They're incorrigibles who hate and abominate a peaceful, well-ordered civilization. They want to sow their wild oats—to rob, steal, commit murder and do as they damned well please. Maybe they'll—some of them—become good citizens eventually if we leave them alone—give them a chance to grow up. The growth of the Underground suggests that that may happen. On the other hand, if you use outside force to destroy Wildoatia, you upset the whole apple cart. Where, let me ask you, do you send the Incorrigibles? If you don't deport 'em, in no time at all they'd be raising hob on Earth and Mars the way they did before the Cooperative Commonwealth was set up. That wouldn't be pretty, would it?"

"Of course Venus is the only place to exile fascists, crooks, and plain damn fools," Frank agreed as he signalled for his pie, "but why let them run the whole show up there? Oh, you'll spout that that's their most fitting punishment...to have a free rein to chew each other up. But what if the Big Shots get strong enough to defy United Stars? You should see them strut and goose step when they visit Venusport. They may have no space ships, but I tell you they're up to something devilish."

He shoved his plate away, tossed a five-credit note across the bar and got up. "It must be about blasting-

off time. I'd better be getting into my strait-jacket."

"You've plenty of time. The mail packet from Mars has to come in before you can leave. I won't have another customer until then." The bartender removed his apron. "Come on. I'll walk you around the dome."

• **AS SOON AS THEY LEFT** the cafe, Frank had the uncomfortable feeling that he had shrunk to pigmy size. The metal hemisphere which served as way station for all ships travelling between planets was a quarter of a mile in diameter. The few grease monkeys moving about its vast floor were almost lost among landing cradles and other pieces of machinery.

"This certainly is the mountain that labored and brought forth a mouse," Sage grumbled. "It's been a hundred years since the first trip was made to the Moon and we're still hanging on here by our eyelashes. For every ship that blasts off from Moon Station for Mars or Venus, ten robot freighters have to stagger up from Earth with fuel and supplies for it."

"Plutonium's not good enough," agreed Tom, who had flown space ships in his time. "Fission just can't supply enough power to make interplanetary travel pay. Fact is, if the Moon weren't here, we'd still be earthbound."

"Um! Think of all the trade that could go on if ships could carry worthwhile payloads. I suppose they'd have closed Moon Base long ago, except for the U 235 which is exported by Wildoatia."

"Oh, I don't know." Old Tom was puffing as he kept up with the younger man's long strides. "We clear a bit of oricalchum from Mars, tungsten and commercial diamonds from Earth, plus a fair trade in jewels and other lightweight luxury items. Tourist traffic is brisk. We manage here, but we'll never get much farther without a better fuel... Well, here comes the mail packet."

A man in a lead-armored suit had run past them and was wigwagging

with a checkered flag. Other men were sweating a twenty-ton cradle into the middle of the floor. Then the mechanics scuttled for the barriers.

Frank and Tom followed their example. As they watched over the top of a thick wall surrounding the "field", a shutter in the center of the roof snapped open. They had a glimpse of the ship cushioning down on her atomic jets before they ducked out of range of the deadly gamma rays.

"One nice thing about landing where there's no atmosphere," said Frank. "You don't have to shift to those confounded peroxide jets." He found that he was shouting, but that his voice sounded far-away and thin. Even with the comparatively small air loss through the shutter opening, pressure within the dome was dropping so rapidly that they found it difficult to breathe. The almost instantaneous loss of air and heat into the absolute zero vacuum of space caused a snowstorm to swirl within the dome. Then the rocket blaze died, the packet dropped neatly into her cradle and the shutter closed.

"Whew! You really take a landing seriously," whistled the S. P. man. "What if a ship should miss the shutter and come down through another part of the roof?"

"Don't mention it." Tom's voice was strained.

• **FRANK STEPPED FROM** behind the barrier to stare at the new arrival. She was a globe, probably twenty times the size of his one-man ship. She was painted a dead black on one hemisphere and a blazing white on the other so her interior temperature could be regulated by rotating the reflecting and absorbent surfaces toward the sun while in flight. She evidently had had a brush with a meteor, since one section of her hull was badly scratched and dented.

The packet's port spun open. An eight-foot Martian in captain's uniform came tumbling out of it.

"K. M! K. M! K. M!" the Martian

was chanting in a magnificent baritone. His great chest pumping like a bellows and his downy red face covered with perspiration, he sprinted for the Communications Room.

"Flash for all stations," he was singing as Frank and Tom hurried up to eavesdrop. "Captain Avron of Packet *Spaceblazer* reporting. When I came out from under Suspense two hours ago an unknown comb-shaped vessel was pacing the *Spaceblazer*."

"Another ship in your orbit? And pacing a packet?" The K. M. man shook his head. "That's impossible, Captain."

"Impossible! Impossible!" The Martian hit a High C and fluttered the stumps of his atrophied wings. "The ship was there! When I signalled her, she accelerated and disappeared in fifteen minutes."

"Excuse me, captain," frowned the K. M. officer. "It must have been a meteor. You have the fastest ship in the system, so..."

Frank couldn't hear any more for the man in the lead-covered suit began bawling through a loudspeaker: "Space Patrol Two-Six ready for blast-off in ten minutes. Captain Sage on board, please."

"What do you make of that?" Frank asked, as he and Tom trotted toward the patrol ship.

"Hallucination, probably. Suspense does strange things to a person sometimes."

"I don't think so. It fits in with rumors I've been hearing at Venusport. The Big Shots are up to something."

"Then here's a word of advice, son." Tom laid a hand on the captain's shoulder as they stopped before his ship. "If that's the way you feel, stop making these fool junkets to New Washington and spend your time finding out what Wildoatia's really up to. If any more trips are absolutely necessary, send Sadie." He smiled crookedly. "Gets sort of lonesome here, now that my ticker won't let me go spacehopping. I'd like to see my girl before I turn up my toes." He shook hands brief-

ly and trudged back toward the cafe, his pudgy shoulders drooping.

Frank climbed into his tiny cabin, dogged the port shut behind him, lashed himself into the anti-shock hammock, shook three Suspensio tablets out of their bottle and signalled for blast-off. Inwardly he fumed because ships could not carry enough air, water and food to allow their crews to remain conscious during a month-long trip. If any strange vessel showed up, he wanted to see it. Finally he broke one of the big pills in two and dropped half of it back into the bottle before gagging over the rest of the bitter dose.

The drug took effect more slowly than usual. Dimly, he felt the pain of the grinding acceleration as the rockets blazed. Before he drifted into suspended animation he saw the silvery Dome plummeting away from him until it assumed perspective in the center of Copernicus Crater.

"Defenseless," he mumbled as his mind clouded. "Moon Station absolute defense...."



“LESS,” he gasped, regaining consciousness
 ••••• with a spine-shattering start and with the conviction that someone had played a dirty trick on him while he slept. That was always Suspensio's after-effect, along with a ravening hunger and thirst. Sage reached for the canned tomatoes which spacemen favor in getting their starving, dehydrated bodies back to normal. Then he recalled the comb-shaped vessel and squinted blearily through the blister above his hammock. The black sky was empty of everything except gigantic sun, unwinking stars and the blank and shining disc of Venus.

"Guess they...don't bother with...small fry," he croaked, opening the can. After finishing its contents he loosened the hammock straps, dragged himself to the control board

and cut the atomic drive. The pile could not be damped, and the fantastically high temperatures at which it operated safely in open space would vaporize the ship as soon as it struck atmosphere. Like it or not, he would have to jockey to a landing by means of a reserve tank of feeble hydrogen peroxide fuel.

Twelve hours later, after circling Venus three times to cut down his speed, Frank knifed into the planet's opaque cloud blanket and settled, with hardly a jar, on the Venusport field. As he clambered to the soggy ground he caught sight of Sadie Thompson racing through the mists to be the first to greet him.

"The same old Sadie," he chuckled when she was in his arms, alternately purring and biting like a kitten. "Still wearing just as few clothes as the law allows and still breaking regulations. Don't you know you shouldn't run out on the field like this? At least you've picked up a few pounds since the first time I came to Wildoatia."

"Uh huh. Gottum dimples now." She exhibited a few. "Like?"

"Like!" He proved it, until she had to draw away to catch her breath.

"What did Great White Father in New Washington say?" She lit a damp cigarette after several tries and dangled it expertly from a scarlet upper lip.

"Great White Father say keepum shirt on," he grinned a bit ruefully as he tried to match her mood.

"I told you." She tossed back her red curls, hugged herself and did a dance step. "You just listen to your Sadie and you'll save yourself a lot of spacehopping."

"Now look here! Is that the way to greet a returning prodigal? You keep a civil tongue in your head, my girl, or I'll take the flat of me hand to you."

"Yah! Sorehead! You'll have to catch me first." And she was off across the field with Frank in pursuit. Venusport officials tore up their speeches of welcome and shook their heads in despair.

• **SADIE WAS IN A MUCH** more subdued mood that night as they ate scamour steaks and drank sparkling traskette at Venusport's best cafe. She listened without a single wisecrack as he told how United Stars executives had insisted that no drastic action be taken against the Big Shots. But she leaned forward intently as he described the arrival of the mail packet at Moon Station.

"Why, if what that captain said is true," she gasped, "it means somebody has invented a ship that can make interplanetary hops in three or four days."

"It means more than that, my sweet. (Here. Have some more steak; you can still put on a pound or two.) It means a new fuel has been found which will permit trips to the outer planets, make Moon Station obsolete and open up untold trade possibilities."

"Uh huh!" Her blue eyes opened wide and she reached across the table to grip his wrist. "It also may mean the end of all of us."

"Nonsense. They said that about the first fission bomb."

"And they were nine-tenths right, as you'll admit if you remember the history of the Atomic War. But this may be far worse. Look, let's figure it out. Remember what those bombs did to the cities of Earth. Well, they were loaded with Plutonium, the stuff we now use for rocket fuel."

"But Plutonium furnishes just enough power to lift a ship, its pilot, one or two passengers, and a few pounds of pay load from Venus or Mars to the Earth. A ship escaping from the stronger gravity of Earth can only limp as far as Moon Station without refueling. Do you follow me?"

"So far." Frank finished his traskette and motioned the waiter to bring more. "Go on."

"So if somebody has built a ship ten or fifteen times larger and faster than ours, it means..."

"...that he has found out how to destroy atomic nuclei instead of merely splitting them by stripping off the electrons. In other words, he

is possessed of a source of practically limitless power."

"Right." She patted his hand. "And now we come to the 64-credit question: Who is that somebody?"

"Well, he couldn't be a good citizen of United Stars. In that case he would have turned over his discovery to the Commonwealth at once. It's too hot for one man to handle."

"So he must be either an Incor or a Big Shot! Please pass those credits, Frank."

"Not yet, my pet. He must be a Big Shot, and only a Big Shot. No Incor could get his hands on enough fissionable material to conduct the necessary research. Only the Big Shots could do that."

"The credits are yours. Now... what can we do about it?"

Frank twirled his empty glass and stared out at the lights of rainswept Venusport. He was fond of the little place and the thought that it stood in the shadow of disaster made him feel ill. When he and Sadie had helped the Underground to take over the town five years before, it had been a dripping pesthole where arriving Incors were robbed of credits and equipment, then shipped off to virtual slavery in Big Shot uranium mines. Now it was a U. S. outpost, clean, rebuilt and thriving.

• **ADVENTUROUS YOUTHS** who elected to leave the well-ordered societies of Earth or Mars to sow their wild oats under conditions of untrammelled freedom on Venus were well protected while passing through the port. Even criminals and other anti-social exiles were entitled to a stiff S. P. indoctrination course in the weird geography and topsy-turvy customs of their new planet. One and all were guaranteed free return trips to their homes whenever they gave proof that they had reformed.

"I suppose this means another war," Frank said at last. "And if it comes it really will smash everything beyond repair."

"Maybe not." Sadie thrust out her dimpled chin.

"You mean the Big Shots will

give up their discovery without a battle?"

"Not a chance."

"If I know them, they'll try to use it to set up a tri-planetary dictatorship."

"Oh, be your age, Frank! Dictatorships are out of date. They won't work; never have worked for more than a few years. You won't catch up-to-the-minute Big Shots betting on a horse that Hitler, and Mussolini, Stalin, and all the others rode to death."

"Then what?" He was beginning to be angry, as he often did when Sadie disagreed with him.

"They'll plan to use the invention as a lever which will allow them to return to positions of power in United Stars. Think what that would mean to them in terms of graft and legalized robbery. They'd be sitting pretty in the middle of everything once more, instead of being tucked away on the fringe of civilization."

"The United Stars would never agree to that; it would mean war."

"I doubt it." The girl picked the strawberry out of her traskette glass and chewed it thoughtfully. "Both Wildoatia and United Stars know that another war is impossible. Say that on Monday the Big Shots wrecked every city on Earth and Mars with a new type of bomb. A month from Monday our V-60's would hit Wildoatia and wipe it off the map. No bomb of any kind could destroy our V-60 dumps without setting off a chain reaction...."

"...which would reduce Earth to a cinder," he snapped.

"A chain reaction wouldn't stop there. It might turn the whole solar system into a Nova...just one big ball of atomic fire. Nuh uh, my friend! The Big Shots know they couldn't escape a chain reaction...and they like to live as well as anybody else does."

"What's your solution, Sadie?" Frank stared at her with a sort of wonder. She looked so much like a little girl, despite the gown which she might about as well not have been wearing.

"We've got to beat the Big Shots

at their own game; we've got to invent a substitute for war."

"A substitute for war!" His respect turned to disgust. "You're nuts; there ain't no such animal."

"Sez you!" As always, when under the strain of great excitement, she dropped into the half-gangster, half-western argot which she had picked up while fighting in the Underground. "Listen, wise guy. I'll bet you five grand I can cook up a substitute the Big Shots will fall for like a ton of bricks."

"Some sort of game, I suppose," he jeered as he picked up the check.

"Game, my eye!" Seeing his bewilderment, she leaned forward and nibbled his ear. "I'll give you just one tip. If an atom bomb explodes, where's the only place it can't do any serious damage?"

"Why...why. Holy cats. Maybe you've got something there!"

"I've got everything." She rose lithely as if to prove it. "Come on, let's hit the hay; we're going into Wildoatia as Incors tomorrow."

"But the Space Patrol has the authority to inspect every Big Shot mine and factory. Why should we go incognito?"

"Because I like to stay alive, chump," she answered, slipping her hand under his arm.



AS A SLOW lightening of the cloud blanket indicated dawn, Sadie and Frank took places among some fifty Incors who were heading out from Venusport into Wildoatia. Like the others, they were dressed in heavy coveralls. Each carried a Tommygun, a knapsack stuffed with food and necessities, and a money belt containing the five thousand gold dollars without which no man or woman was allowed to cross the last frontier.

The Incors were a wild lot; mostly young, highspirited or spoiled

people who rebelled at the strict moral standards of United Stars. In spite of themselves, both Frank and the girl felt strongly drawn to this group. They felt no sympathy for a scattering of older Incors whose hardbitten faces indicated that they had run afoul of U.S. law and were being "shipped over", the only major punishment permitted within the solar system.

"Say, chum." A beetlebrowed youth sidled over to Sadie as they left the port and plunged into the sweating jungle. "Do you reckon it's as tough in Wildoatia as they make out in that indoctrination course?"

"It's plenty tough," she answered out of the corner of her mouth.

"Been there before?"

"What's it to you?" As he started to protest she added: "The first law of Wildoatia is not to ask personal questions."

"Watch him," the girl whispered to Frank as Beetlebrow retreated. "I smell Pumper."

"Oh, he's just a dumb kid."

"Mebbe so. Mebbe so. Watch him anyway."

It was a dismal trip. The eternal drizzle soaked them to the skin; a few hardy jibbugs chewed at them. From time to time bloodsucking plant-animals along the muddy trail snaked out prehensile branches. Then there was much swearing and hacking with machetes until the white-faced victims freed themselves.

The skylarking with which the Incors had celebrated their departure from Venusport dwindled and died. In fact, it became evident as the day progressed that Beetlebrow, at least, was losing his nerve. He snarled curses on the journey; he buttonholed lagging companions and muttered about the advisability of returning to Venusport. He yelled like a frightened child when branches reached for him. Only when more hardy travellers threatened to kick him out of the group did he subside.

"That kid's a menace," Frank

groaned at last; "he'll wreck the morale of all of us."

"I'll bet he's doing it deliberately." Sadie squashed a jibbug which had chewed its way through the mosquito netting draped from her helmet. "A Pumper. No doubt of it."

• THINGS CAME TO A HEAD
When camp was made for the night on a high and relatively uninfested ridge. There Beetlebrow grew suddenly brave and argued against Sadie's proposal that sentries be posted.

"There ain't no danger," he whined. "Scamours don't climb this high. We all ought to get a good night's sleep so we'll be on our toes when we get to Nirvana tomorrow."

When Sadie's counsel prevailed, the fellow picked up his blankets and stalked into the darkness to sleep by himself.

"I agree with you," said Frank when he and Sadie were rolled snugly in their waterproofs near a smudge. (It held off the humming army of jibbugs which had arrived with darkness.)

"Um." She wriggled into a more comfortable position on the sodden ground. "I told the sentries to keep an eye on him."

"Say," he continued softly, "on your idea for a war substitute... Why not break down and explain it to me?"

"Haven't explained it to myself yet," she yawned. "That professor who named me Sadie Thompson when we were concentrated once... because it rains all the time here, you know... he told me about how, in the Middle Ages, when two armies were too well matched to fight, each would select its best knight to represent it. Now what did he call 'em?"

"Champions?" Frank rose on one elbow.

"That's it. So the champions would... joust, was it? And the army whose Champ won would be declared the victor."

"Do you think either the U.S. or the B.S. would agree to any such harebrained scheme as that?"

"They would if they had to."

"But the Big Shots glory in having no sense of honor. Under their crazy code, they'd be bound to doublecross us if they lost."

"But they couldn't lose, could they? Not if they've learned how to disintegrate atoms." Her voice sounded far away.

"I don't get you. What's the use of our side putting up a champion if he's sure to lose?"

"I didn't say our side would lose. Or did I?" She yawned again. "I'm dog-tired and all mixed up. Haven't taken a hike like this since we marched on Venusport. Kiss me goodnight. Beetlebrow says we have to be on our toes in the morning."

Frank lay awake a long time, listening to jungle sounds and struggling over her paradox. He dozed off to be jerked awake by a burst of gunfire. It was from the sentries; their quick action alone saved the little party as a horde of wild-eyed, ragged savages poured up the ridge toward them in the dawnlight.

Sadie was out of her blankets and yelling orders even as she knuckled the sleep from her eyes.

"Take cover," she shouted. "Spread out. 'Ware grenades. Hold your fire." She spoke with the authority of a girl who had grown up as a jungle outlaw. As the others jumped to obey, Frank crawled through the bitweed to see whether their defense circle was complete. He found it so, except where the ridge ended in a steep declivity.

"Fire," screamed their self-appointed commander as the gaunt figures of their attackers loomed through the fog. A storm of Tommy-gun bullets sent the enemy flying, except for a dozen who lay writhing.

"They're poor devils of Incors who've been waylaid and robbed by some Big Shot patrol," Sadie explained grimly as the shooting died. "They'll come again; they've either got to make another stake, let themselves be concentrated, or starve."

It was at this moment that Beetlebrow went mad. Throwing away his gun, he began running along the edge of the cliff, waving his arms

and alternately shouting curses at the enemy and screaming for mercy.

Without a second's hesitation, Sadie swung her weapon and pressed the trigger. Beetlebrow went over the cliff.

"My Gawd! What did you do that for?" Frank looked at her aghast.

"I think he was signaling for an attack up the cliff. Get a detail deployed over there fast."

"Why, the kid cracked up!"

"In that case he didn't belong in Wildoatia and I did him a service. Quick! That detail!"

Surely enough, when they reached the clifftop they found twenty of the frowsy enemy toiling up toward them. This time their fire did real execution; the few survivors fled like lost souls.

• **M**INDFUL THAT THEY must reach Nirvana before nightfall if they expected to enter its wall, the Incors, who had survived the battle with hardly a scratch, packed knapsacks and plunged again down the trail. Once they detoured a heavily-guarded convoy of ore trucks enroute to Venusport. Once their enemies of the morning tried another ambush. Nevertheless they made good progress and caught sight of the mist-shrouded battlements of their destination while it was still light. Here Sadie called a halt.

"Fellow Incors," she cried as she leaped onto a rock, "you're entering Wildoatia proper. From now on each one of us is on his own. You all know the laws here: Might makes right; dog eat dog; devil take the hindmost. No cooperation; no partnerships; no friendships. Even handshaking is illegal. If you are robbed or cheated, don't go running to the police. They'll laugh at you. Maybe they'll slap you in a concentration camp where you'll work a year to pay your fine.

"You get only three breaks in Wildoatia. If anyone swipes your gun, he has to leave a shooting iron of some kind in exchange. If you're arrested and escape, you can't be picked up again on the same charge

after five hours have passed. And if you manage to beg, borrow, earn or steal a million bucks, you automatically become a Big Shot with all rights, privileges and immunities."

"Wait a minute, Miss." The speaker was rawboned and bowlegged, as though from riding herd on some faraway cattle ranch. "Ain't they no way a feller can get help if he finds himself in a jam?"

"There are two ways. First, you can return to Venusport and promise the S. P. that you'll go straight." She bit her lip and hesitated. "Maybe I shouldn't tell you the other way this early in the game, but I will. If you've got the guts, you can join the Underground. Then you'll have a sporting chance of getting to civilization."

"The Underground," sang out a downy youth from Mars. "The indoctrinators said you can get shot just for joining it."

"That's right. I said you had to have guts... Well, good luck, folks. You've made a good start; only one group of Incors out of three ever gets to Nirvana without being hijacked. Let's go." She jumped from her perch and stalked off toward the town which rose, like a scene from fairyland, before them.



NIRVANA had once been the main pleasure city of Wildoatia while Venusport had been its administrative center. Since the latter had been taken over by United Stars, Nirvana had also become the Big Shot capital. But it still retained its synthetic medieval grandeur. On a mountain top which pierced the planet's lower cloud layers, it rose, tier on tier of marble castles, twisting streets and crenelated walls, until it disappeared in the distance, like a dream of old Spain.

They were welcomed like heroes

into Valhalla when they reached the frowning wall, with its moat and torchlit portcullis. Trumpets sang from a dozen towers; the drawbridge came down with a roar. Out marched a guard of honor in shining armor, preceded by a bevy of houris in diaphanous robes, or better. The latter strewn orchids along the pathway before throwing themselves into the arms of the newcomers. There were even handsome youths to greet the women in the party.

"Poppycock right out of the tellyes," whispered Sadie. "But it wows 'em every time. It got me too, the first time I came... Thought I was entering heaven."

A dark-eyed beauty in cellophane danced up and presented them with goblets of traskette. Sadie pretended to drain hers, but slopped most of the heady stuff on the cobblestones. Frank followed her example; the other arrivals, their misgivings forgotten, drank the liquor to the lees.

After another flourish of trumpets, a jolly fat man, dressed like the king of Mardi Gras, hurried across the drawbridge, arms outstretched. "Welcome to Wildoatia," he boomed. "Who are the leaders of your party? I have a special welcome for them."

The cowboy opened his mouth but closed it when Frank kicked his shins. There was a long silence.

"Splendid! Splendid," bellowed the fat man at last. "You have no leaders. That's as it should be in Wildoatia, where every man is a king and every woman a queen." As houris threw garlands around the necks of the newcomers he continued: "Tonight Nirvana is yours. You are honored guests of the city. Not one penny can you spend. Come, follow me to the City Hall. We must check your passports. A mere formality, of course."

"Of course!" sneered Sadie in a whisper.

"After that," this strange glad-hander rambled on, "you must taste the unparalleled joys of Nirvana, the jewel among all the cities of the universe. You may bathe in scented waters; you may dine on the best foods and drink the finest wines. Later

you will want to play games of chance or dally with the maiden or youth of your choice..." He paused to mop his brow.

"...and wake up tomorrow with a dark brown taste to find that your friend has stolen your money belt," Sadie crooned in Frank's ear. "Then, ho, for a concentration camp for a long term at hard labor if you dare make a complaint."

"Come one; come all!" Their host pranced away. The houris urged the Incors across the drawbridge in his wake.

"Do exactly as I do," whispered Sadie after they had progressed for several blocks up a flag-draped boulevard. "We've got to make our getaway."

"But aren't we...?" Despite himself, Frank was a bit carried away by the pomp and circumstance of the martial music and the gaily-dressed, cheering throngs which lined the way. "I never had a chance..."

"I do believe, Frank," the girl teased him, "that if you had made your pile when you first came to Wildoatia you'd be a Big Shot today. Well, you'll have no chance to taste the fleshpots and I'm the only houri you're going to have any traffic with tonight. Besides, we wouldn't stand a chance of escaping recognition in the police lineup at City Hall... Now!"

• **SHE HURLED HERSELF** into the crowd lining the street, sprinted for an alley with the patrolman at her heels. They plunged into darkness just as a burst of gunfire sent splinters flying about their heads.

"That was close," gasped the girl. "The Shots certainly have their guard up these days." She seized Frank's hand and raced with him along a narrow way which was slippery with garbage and rank with stench. "Here we are. Sharp right... Now left... Last time I came through here I had a broken arm. But you should have seen the Concentrator who gave it to me... Wup! This is the place." She dived into a tumbledown liquor store.

"Sadie Thompson," she snapped at the blinking proprietor; "we're tailed."

The fellow jerked a thumb toward a curtain at the back of the shop.

They ducked behind the cloth, plunged down a flight of stairs and landed, plop, in a sewer.

Wading against a flood of filth, beating off tarks which squeaked and slavered at them, they advanced blindly. A quarter of a mile "upstream" they found a door marked by a phosphorescent glow.

They dragged themselves through it and into an empty chamber which bore the word, *Baths*, on an inner door.

After scrubbing some of the sewage off each other and changing to clean overalls, which they found in a locker, Sadie pressed a concealed button in a series of dots and dashes.

A door opened in the wall, revealing a corridor hewn out of rock. They went through it until they reached a room occupied by a man with one arm and a hideously disfigured face.

"Jack!" cried the girl. "I hoped you'd be on duty. This is Captain Sage; you've heard of him. The Shots are tearing the town apart to find us. Can you put us up for the night?" As the one-armed man nodded she rattled on: "We hear the Shots have something better than Plutonium."

Again the nod.

"Know where their labs are located?"

Jack picked up a pencil, wrote a sentence and handed her the pad.

"Somewhere under the Polar Sea?" Sadie frowned. "Not much chance of hitting a hideout like that with a V-60. How far along are they?"

"One ship finished and given a trial run," wrote the cripple. "The Underground managed to get 542 on board but I haven't received any information for weeks."

"How about her speed?" Frank put in.

"Last report from 542 said she travels at One Gravity acceleration," was the scribbled reply.

"One G?" The spaceman wanted to laugh but dared not because of that scarred, impassive face. "Why that's only a little more than 32 feet per second. My patrol ship can hit ten G's."

"You got me wrong," came the answer. "One G is only 16.1 feet for the first second, but after that, the speed of the new ship increases steadily at the rate of 32.2 feet per second."

"Wow! I see what you mean." Frank did some quick calculation. "She can reach Earth in three days or so. Our ships have to take more than a month for the same run because they hit maximum speed soon after blast-off and coast the rest of the way to save fuel."

"And since the new ship has some sort of super-fuel, there need be no limit to her size," Sadie exclaimed. "She can carry plenty of food, air and water, so crews can remain conscious at all times. Crews can move about on shipboard as comfortably as they do on the ground because her constant acceleration—or deceleration after she reaches turnover point—will act as a substitute for gravity. This is big, Frank. Bigger than we thought."

"Man can reach for the stars," wrote Jack.

"Or finally blow himself to smithereens." This from Frank. "The Shots have us licked this time if we don't stop them quick."

"Can we raid that lab?" asked the girl.

"Not a chance." The pencil raced. "Only a tark could get into it."

"Then we'll have to fish a tark out of some sewer." Sadie thought deeply for a moment, then slapped her round thigh. "Not a bad idea at that!... Well, Jack, how about a place to sleep?"

They spent the night in an air-conditioned subterranean chamber. Jack had beautifully forged passports ready for them when they awoke. After bidding him goodbye they mounted endless stairs to emerge at last onto a busy street.

• **EVEN IN THE PEARLY** daylight—Venusians seldom see their monstrous sun, and then only with regret—they found that the city had lost none of its brittle charm...its hectic Coney Island dash.

Incor by the score already were entering its blatant palaces, intent on squandering their last few silver dollars or gold nuggets in an effort to forget their grinding, hopeless toil in mine or jungle. Others, better dressed and cockier, evidently had made a stake. They were going to the dens, usually to gamble away their winnings, but once in a while to pyramid them into the coveted million which meant freedom and a proud place in Wildoatian society.

A few Big Shots were drifting into the more expensive and exotic pleasure haunts, there to lord it over lesser men, take their pick of lesser women and indulge every whim their jaded fancies could invent.

Roaming the streets at random, the interlopers looked from blossoming terraces over breathtaking vistas; smiled at roving mountebanks and accepted flowers tossed by pretty girls.

"The place has a certain charm," Frank said grudgingly.

"Think so?" She led him into a street where glittering cafes—one was frankly called "The Clip Joint"—dope dens, telic theaters, circuses and houses of assignment rubbed elbows like thievish brothers.

Within a few minutes they saw an Incor in ragged coveralls stumble out of a "gambling salon", place an automatic to his head and blow his brains out. Later a blonde in sequin harness stepped behind her companion and slipped a stiletto between his plump shoulders. In both cases nearby policemen made no move to interfere. Instead, they blew piping whistles which brought street cleaners on the run to clear away the mess.

"Charm!" snorted Sadie. "Yes, in Nirvana you can do anything you please...except look crosswise at a Big Shot, or go broke."

"Where are you taking me, any-

way?" Sage tried to forget the things he had just seen.

"To the City Hall to look up an old friend of ours."

"A Big Shot?"

"I'll say; we made him one of the biggest."

"You mean..." He fished back into those hectic days when he first had come to Venus and when Sadie was the firebrand of the Underground. "You mean Mike, the stupid little doublecrossing tark who betrayed Venusport to us in exchange for the location of the uranium mother lode?"

"The same; he's now commandant of Nirvana."

"He'll have us shot."

"No he won't—not if we make it worth his while. Besides, I still have the safe conduct he gave me to show his gratitude."

"Look, Sadie my girl!" He dragged her down on an iridescent bench beside a fountain of scented rainbows. "Ever since I got back I've been trailing you around like a puppydog. I don't like it. Are we partners or am I just a stooge? What's up your sleeve?"

"I'm simply working on the theory that history repeats itself," she chuckled, rumpling his hair. "Ancestors of the Big Shots lost the First World War, the Second World War and the Atomic War. Each time they were a hundred times better prepared than the decent folks who opposed them. Now, teacher, tell me why they lost."

"Because..." he fumbled. "I guess it was because they had no honor; they doublecrossed themselves into defeat."

"Right. They're atavars... throwbacks to the age of tooth and claw. Some of them happen to be geniuses, though. That's one of the reasons why we try not to kill 'em any more. We send 'em here to blow off steam, bust atoms if they can, and possibly see the error of their ways. The reason we dare do that is because they can't see any farther than their own noses; they take the cash and let the credit go, as old Omar put it."

"A comforting theory," he jeered.

"If it's true, why don't we just sit back and take it easy?"

"Because such people have to be whittled down to size occasionally. They serve a useful purpose in society but they can't be allowed to get out of hand again."

"You win. But you still haven't told me what you want with Mike."

"I'm going to take him in hand," she laughed, and dodged into a crowd of tipsy merrymakers as he reached for her.



THEY TOOK a compressed air car to the City Hall, a vision in black marble which towered at the very top of the mountain. Sadie's crumpled safe conduct got them past guard after frowning guard, but they saw several less fortunate citizens being booted down the wide steps.

They were escorted into a 100-foot-long chamber. At the end of it, a colorless man in a colorful uniform was almost hidden behind a desk three sizes too large for him. It was Mike, all right, but a Mike considerably changed by his success. That is, he no longer sniggered sadistically; he frowned sadistically. He still gnawed the knuckle of his left forefinger, however, with the same nervous gesture he had used when he had been bodyguard to the brutal boss of Dead Man's Delta.

"Well?" he barked when their guards had placed the visitors before his chromium and plastic throne.

"Well yourself," the patrolman snapped. "Send your gorillas away."

Mike gnawed in indecision, then gave the order.

"So you found you couldn't get out of Nirvana and have come in to give yourselves up," said the commandant when they were alone. "That was a dirty trick you played on me yesterday... Scared the new Incors half to death. If you had come

as members of the Space Patrol, I'd have given you every honor. As it is, I'm entitled to concentrate you under the law. Which camp do you pick?"

"We'll take the one under the Polar Sea." Sadie lit a cigarette and tossed the match on the inch-thick rug.

Mike jumped, then blew up, dropping his pseudo-cultured tone for gangsterese. "Snoopin' again," he shrieked. "I'll have you rubbed out. Youse guys ain't gonna..."

"Mustn't say 'youse guys', Mike," Sadie spoke as to a child. "You're commandant now."

To Frank's amazement, Mike's fury collapsed like a pricked balloon.

"You haven't a thing on me," he mumbled, sinking back on his throne. "I ain't gonna...I won't talk."

"Nobody asked you to," said Frank. "This is just a personal call ...for old time's sake. We were wondering how you are making out with your mother lode."

"It...it's still producing ninety per cent of the U 235 on Venus." Mike stared at them like a sick calf. "Only..."

"Only the new engine they've developed up north doesn't need U 235. A hunk of rock will serve it just as well for fuel. Right?"

"That's about it." The little man licked dry lips. "I'm ruined; you devils know it damned well."

"Going to take it lying down?" jibed Sadie.

"Aw, cut it out, will you? What can I do about it? Kingfish Uranium has dropped from 240 to 23 1/4 on the big board since the rumors got around. I'm washed up; one of these days the Directors will remember I'm here and kick me out among the Incors."

"Look, Mike," said Frank. "The Space Patrol likes you. You've played ball with us before. We really want to help."

"Ain't nothin'... I mean there's nothing you can do." That knuckle was taking punishment again.

"We got you out of a hole once, didn't we?"

"You sure did and I sure appreci-

ates it." A faint light of hope dawned in those frightened, beady eyes.

"We can do it again," the captain went on. "But first we want to ask you one question: Do you think the Shots can take over the system with their new weapon?"

"Naw." The narrow shoulders sagged. "Everybody knows we'll be blown to bits if we try that. But we gotta try. Ain't no future for a man in this gawdforsaken hole. Some of the other Directors, they're rarin' to go, no matter what happens. Me, all I want is to live a while." He shook his balding head. "I don't even like commandanting any more...don't get any fun outa it. Why, just yesterday I broke an Incor on the rack and, would you believe it, I didn't get any kick at all; I must be gettin' old." He seemed ready to cry.

"That's tough, Mike." Sadie was all sympathy. "But I have a plan to prevent any real trouble. It'll make you the biggest Shot on Venus, too... for a consideration, of course."

"Yeah?" He leaned forward greedily. "Shoot."

● THE GIRL OUTLINED HER idea for a war substitute.

"You got somethin' there," he agreed doubtfully when she had finished, "but I don't get this champagne stuff. Ain't no Big Shot gonna risk his life in an evenly-matched duel."

"Oh, I didn't mean that at all. I meant something like matching your new ship against the Space Patrol out where nobody but the crews could get hurt."

"Say!" Mike sucked through his yellow teeth. "That's not bad at all. If we win we'd have a monopoly on space travel...a chance to get off this dinky planet and do some business. If we lose, I reckon we'll have to surrender our new discovery to United Stars—but otherwise we won't be much worse off than now... But what do I get outa the deal?"

"Why, you sell it to the Directors while we get New Washington to agree. If it goes through, it will get the Shots out of an impossible situation, no matter who wins. The least

they can do is make you chairman of the board. Then you won't have to worry about Kingfish U."

"The present board chairman hates my guts. He won't go for any plan I suggest. Besides..." He looked at them through slitted lids, "what's that 'consideration' you mentioned?"

"You'll have to get one or both of us on board that ship. Frank is an astrogator, so he should qualify. I can pinch hit as a nurse, entertainer or even a cook."

"Not on your life; I ain't gonna doublecross my pals."

"You made out all right when you doublecrossed them before."

"Nope." Mike thrust out his weak chin. "They'd rub me out."

"Okay. But being rubbed out is better than rotting by inches when our V-60's begin to drop. You won't look pretty, Mike, when your nose and ears fall off; when your flesh starts peeling from your bones because of the gamma rays. Then, there's that palace of yours...and your harem."

"Oh stop it, Sadie. Stop it! You win!" His knuckle was bleeding by now. "How about dropping out to the palace tonight? The chairman is coming over. I'll try to sell your plan to him. You won't hold it against me, will you, if he doesn't buy?"

"He'll buy...one way or another," the girl said grimly.

"Swell." The commandant jumped up with a lightning-like change of mood. "Let's go, then. The little women will be waitin' for me."

• **AFTER THEY WERE** aboard his shiny black plane Mike asked jovially: "What kinda entertainment would you like tonight? I been tinkerin' with some of Nero's old stunts... Incors to the scamours and stuff like that... Not bad for a change."

"A little too close to home right now." Frank shuddered.

"How about a scamour hunt, then, before dinner? There's scads of them critters around the palace. They keep me fresh out of slaves."

"Swell." There was nothing Frank

wanted less than a brush with those gobbling reptiles, but he knew Mike needed gentle handling if he were to go through with his bargain.

"Like it?" beamed the little Big Shot as they landed on the roof of a rococo monstrosity which must have cost millions.

"Gorgeous!" beamed his guests.

Mike's harem, twenty beauties of every race, color and state of deshabille, was waiting for them. Squealing with synthetic glee, the girls bore them on embroidered litters to their quarters. These resembled glorified hotel suites replete with gold-plated bathrooms, priceless tapestries and uncomfortable furniture.

"What awful taste the beast has," laughed Sadie as she dunked her long-legged body in a scented and mirrored pool. "And to think I once wanted to be a Big Shot...wanted to be one so desperately that I tried to rob a joint like this."

"What happened?" He was eyeing her appreciatively.

"Oh I was caught, of course. They slapped me in a concentration camp. See that scar? It's a burn I got in the uranium mines. That's where I joined the Underground."

"Funny place to have a scar," he grinned. "Get out of that pool and help me put on this cursed armor..." Are all their palaces like this one?"

"Worse!" She dripped water down his back. "Huge, gloomy holes where bored gangsters try to pretend they're having wonderful time. The Big Shots are just Incors who made their pile and are out to show off like wicked children. Well, tonight let's pretend we're wicked children too."

"That shouldn't be hard for you." He helped the girl don her own light armor. "Sometimes I think you're a potential Big Shot still, at heart."

They entered the palace donjon to find Mike chatting uncomfortably with Hirokima Schmidzu, chairman of the Wildoatian board.

"So pleased," hissed the yellow man after introductions were completed. "Have been hearing about your plan."

"Like it?" Sadie sounded unutter-

ably bored as she surveyed her shining self in a mirror.

"Regrettably not." Schmidzu was not in the least bored as he undressed her with his slant eyes. "There is no substitute for honorable war."

"Too bad." The girl turned to Mike. "When do we start?"

In the dripping twilight...that hour before ravening jitbugs make outdoor life impossible...the scamour hunters poured out of the gates and into the softly-breathing jungle. Machetes in hand and Tommyguns slung across their shoulders, about a dozen of the commandant's guests spread out and moved forward warily. The chairman attached himself to Sadie and Frank as they advanced.

Mike's gardeners had done a fair job of weeding out the most dangerous plant-animals from the grounds. Nevertheless, their way was made dangerous by roots which snaked out to grasp their ankles and by suckered branches which whipped at their throats.

They had progressed only a few hundred yards when Frank came upon a panting slave girl entangled in a mass of carnivorous vines. While the Japanese hissed disapproval, he defied the immutable laws of Wildoatia by cutting her free. She stared at him as if he had committed a crime and fled without a word of thanks.

"It is, shall we say, bad taste, to help Incors in distress," Schmidzu expostulated.

"You'd talk differently if you were in a jam," flashed Sadie.

"Beg to differ. I would never be in what you call a jam. See." He held out two gold-encrusted blades. "These Samuri swords. My honorable grandsire used them to defend Tokyo in second World War. Gbd'protect me through them."

They neglected to point out that Tokyo had not been defended.

• BY NOW, MIKE'S BEATERS had driven several scamours out of the lower swamps. They heard the piteous "Gobble, gobble, gobble" of Wildoatia's most dangerous reptile not far ahead. Rifles crashed to the right. Someone screamed in the

middle distance. Then a dead-grey head, with eyes big as saucers, swayed out of the muck directly in their path!

Frank and Sadie fired together. The nauseating head jerked back, then flicked forward on a scaly body equipped with a score of yardlong legs. The thing embraced the girl lovingly. Taloned feet clawed at her armor. A spiked tail wrapped about her in coil after slow coil.

"Gobble," moaned the scamour, showing its teeth in a wide smile before they sought the girl's throat.

Frank sprang forward, swinging his machete with both hands.

"Beg to state," hissed Schmidzu, "laws of Wildoatia forbid aid to another. Regret I must report this."

"Report and be damned," snarled Frank. Green ichor spurted under his blows but the creature seemed not to notice. Sadie was frantically squeezing the monster's throat to no avail. It forced its triangular snout forward, inch by inch.

Bracing himself with feet wide apart, the spaceman put all his strength into a blow aimed just below that horny carapace. The blade struck home this time, sheering through flinty scales to the backbone. The scamour's head fell backward and its coils loosened as it wailed like a hurt child.

Another wail made Frank whirl. The board chairman had been attacked by the creature's mate. Samuri swords sheared off several of the creature's legs but proved pitifully inadequate in the hands of the little Japanese. Instinctively the captain sprang to the rescue. Sadie, white and shaken though she was, gripped his arm with fingers of steel.

"No!" she gasped. "No Frank! You mustn't."

"You help girl," screamed Schmidzu, struggling futilely. "You help me, I not report, please!"

Frank did his best to respond, but Sadie clung to him until the scamour dragged its suffocating victim out of sight.

"It was our only chance," the girl wept as they chopped off the first scamour's head and turned back toward the palace with their trophy.

"That rat would have had us concentrated; you know it as well as I do."

"Yes," he agreed bitterly, "but it still was a foul thing to do."

Their spirits revived somewhat when they discovered that three other hunters were missing...and unmourned...while the rest had returned empty-handed.

"Nothing to it," Sadie assured their cheering admirers when they reentered the keep. "We wanted to bring in another head, but the jits were getting bad." She limped off to have her bruises dressed.

• **THEY DINED ON SCAMOUR** steaks again that night. They drank explosive gurka. They flirted outrageously with members of Mike's court. They watched the unbelievably lovely gyrations of two Martian flying girls who had been smuggled into Wildoatia at the risk of an interstellar incident.

Sadie told riproaring stories of the days when she was one of the toughest of the Incors. Then they danced square dances and sang cowboy ballads of Earth's old West which were the current rage. Finally they stumbled off to bed after having given Nirvana's commandant one of the pleasantest evenings of his misspent life.

Mike appeared while they were still asleep the next morning and reported that he had wangled them berths on the new ship.

"Took some pull," he boasted. "Ain't ten men in Wildoatia as could have did it. Wouldn't have had a chance if Schmidz hadn't gone and got himself killed." He winked and added. "You'll have to have your faces and fingerprints changed a bit, though. Captain Hans will check your records seven ways from Sunday."

"Give Frank a pug nose like mine," Sadie directed when a plastic surgeon appeared in answer to Mike's summons. "And how about making him cross-eyed, too?"

"How about making her tongue-tied?" Frank retorted.

After much argument they compromised by altering the shape of

Frank's mouth, slanting his eyebrows and pushing back his hairline. Sadie acquired a classic Greek profile; her freckles were eliminated and her hair became glossy black. Skin grafts were implanted on each of their fingertips.

"That should serve unless somebody examines your retina patterns," said the surgeon two days later. "Your features can be changed back, in time, but your fingerprints are permanently altered."

"Did I ever love *that*?" sighed Sadie when Frank's bandages were removed at last.

"You could get a job in Hollywood," he admitted grudgingly as he studied her in turn. "But confound it, I liked those freckles!"

They had kept the air waves to Venusport humming during their confinement. There was the usual red tape to break, of course, but news of the power source was so menacing that New Washington finally agreed to the plan for a sub rosa test of strength—the Space Patrol against the Big Shot ship at a spot somewhere between the orbits of Earth and Venus.

"Now it's up to us," said Sadie as they packed for their trip north. "How does it feel to have your head in a lion's mouth?"

"What if we can't accomplish anything when we get on board?"

"Then we're not the hellraisers we think we are... Of course S.P. can't lick 'em. It'll have to find a way of getting the drop on 'em... Don't worry. It will only make you lose the rest of your hair."

• **MIKE ACCOMPANIED** them on the supply plane which bore them toward the Pole. He was in a bad mood. "I shouldn't ought have done it," he groaned. "If they's been a leak... If Hans gets suspicious about you two, we'll be burned down. Only thing in our favor is that they're desperately short of men up there."

The ship's ports were blacked out as she approached her destination. They had no chance to determine the route. Finally they knew that they had landed on water, but when

they emerged that they were in a pressurized hanger which had submerged into a huge chamber drilled in solid rock.

"Shots?" barked Hans, surveying the prospective recruits when Mike ushered them into the scientist's severely plain office.

"No." The commandant squirmed. "They're Incors, but they'd sell their souls to make a stake."

"Incors! Always Incors!" The unhealed radium burn which covered the whole side of the huge man's face flamed an angry red. "I need some people up here that I can half-way trust. All these Incors you've been sending me are dangerous. Already I've smashed two of their plans to steal or smash the ship. What's the matter with you Shots? Yellow?"

"Now look here, Hans..."

"Yellow!" Hans whirled from Mike and glared at Frank.

"You're an astrogator, they tell me. We can use you if you're not lying."

"Dave..." Frank began.

"That's enough. We don't use last names up here. And you!" His one good eye examined Sadie as if she were a bug. "Nurse, eh? Know anything about radiation burns?"

"I was in the uranium mines, sir."

"Good. Your job's to help the doctors keep me on my feet a few months longer. Haven't time to die just yet."

"How the *Champ*?" Mike changed the unpleasant subject.

"Just back from a swing beyond Jupiter." The big man's face lighted up for the first time. "What a ship! Had her up to three quarters light speed. She ran like a dream."

"Three quarters light speed," Frank gasped. "That's around one hundred and forty thousand miles per second."

"She'd have done better, except that we started having some kind of eye trouble...sort of like seeing double. A damned queer feeling, I tell you. Gives you the screaming meemies... Well," he came back to normal, "thanks for bringing me an astrogator, Mike. When do we move?"

"As soon as the Boss sets a date with New Washington."

"I'll be ready." Hans escorted Mike to the door, then growled at the recruits: "Come along. I'll show you your quarters. You won't need them much; we work sixteen hour shifts here...and I mean work!"

● **FRANK SPENT THE NEXT** month in a fever of toil. Hans was a slavedriver who enforced discipline on Shots and Incors alike, even though he had to break heads to do so. All life in the spacious undersea laboratory revolved around the thousand-foot-long, comb-shaped vessel which rested on its cradle beneath a dome reaching almost to the surface of the ocean. Within her silver skin lay the crooked aspirations of Wildoatia.

"Look at her," the leader crooned on one occasion. (Frank had been given a clean bill by Security and was being taken on an inspection trip.) "She'll reach Far Centaurus some day...but I won't be on her." He caressed the bulging stern plates. "In here is a standard set of peroxide jets to take her through atmosphere. I hate the clumsy things. Wish I had time left to solve that problem of radiating heat from a compact pile when it's not operating in space... Look up there!" They craned their necks, as at a skyscraper. "That battery of rockets projecting from what is now her side uses the new fuel. She travels broadside on after blast-off."

They took an elevator to the control room amidships.

"Designed the equipment myself." Hans beamed at the banks of quadrants, verniers and sky-encompassing viewplates. "Five years of hard work it took...to pay off United Stars for this burn!"

They toured the engine room where a compact, heavily shielded pile stood ready to change tall stacks of pig iron ingots into unlimited power. Then they inspected the comfortable crew's quarters.

"What about armament, sir," Frank probed at last.

"There are guided missiles which can seek and find targets thousands

of miles away. They can be equipped with either fission or disintegrating war heads. Both go dead after a certain period; can't have a disintegrator bumping into some planet and blowing it sky high. For really high speed operations, guided missiles won't be much good, of course, except in a stern chance. Then we'll depend mainly on the mine fields we spread behind us. Come on. Might as well show you the stuff." He started down an odd companionway which had steps both on one wall and on the floor. Then he staggered and leaned heavily against a bulkhead.

"Better go get that cursed nurse," he panted. "This burn..."

Frank found Sadie in the hospital and hurried her toward the ship.

"How long will the Old Man keep going?" he asked.

"A month or so, if he's careful... I hope the Patrol stalls a bit."

"Then what?" He took a chance on patting her hand.

"We may get our chance. The Second is a dope."

"Have you made any contact with that Underground agent?"

"Not a chance. Hans has spy rays rigged up everywhere."

"Same here. Well, keep your funny chin up, Sadie... There's your patient... And try to get more rest; you look peaked."

They found Hans walking blindly in a circle, gave him a sedative and helped him back to his room. Then they parted silently with a quick handclasp.

FRANK WENT BACK TO plotting orbits to every planet and satellite, as well as perfecting combat maneuvers. His math was rusty, so he spent long hours at his desk and found little time to make friendships with his shipmates to be. The other technicians were also a hardworking lot, far different from the roistering Big Shots who ran the planet. Hans had handpicked them and they were wise, ambitious and hard...driven by a grim selfishness which made the astrogator quail. When, for self-protection, Sage aped their mannerisms and ways of thinking, he found himself growing as

viciously efficient as a crouching tiger.

The only real acquaintance he made, among that crowd of automations, was the foppish son of an Argentine who had escaped from the debacle which struck his country during the Atomic War. His name was Carlos and he warmed slightly when he found that Frank had picked up his beloved...and outmoded...Spanish language while working on the Sahara project. Carlos was second in command and obviously dreamed of supplanting Hans. He was a complete egomaniac. But Frank could discern no outward disloyalty to Wildoatia.

Of course the patrolman discussed the details of his work with half a dozen technicians, but the person he warmed to was one of the few women in the lab. She was a radar operator who had been cashiered from a mail packet for some disgraceful episode on Mars. Blonde and good-looking in a stocky way, she answered to the name of Greta, wore her harness with an air, swore like a trooper, smoked cigars, drove her subordinates until they dropped, and worshipped money as her only God. For some reason she took a fancy to "Dave" and overlooked many of his early errors while damning others for less serious mistakes.

In other words, Frank found himself getting nowhere with his plan to sow dissension among the crew. As in early stages of the three great wars, they were frantically loyal to their brutal ideals and leaders. If there had been rivalry involved, the spacemen felt he might have accomplished something. This idea, plus a longing to look at Sadie, caused him to pay a visit to the director. The latter, now but a bloody caricature of himself, still maintained his iron rule from a hospital bed.

"Sir," he proposed, fixing his eyes on the nurse instead of on the thing propped up in bed, "I've found that the *Champ* needs another trial run. Her controls aren't properly calibrated for close work among the planets."

"The devil you say!" Hans rose

painfully on one elbow. "I calibrated them myself."

"There's an error of half a degree in the..."

"I know, dumbkopf. It won't bother us when we move against those S. P. tubs. Leave well enough alone; I can't make such a trip again. And I don't trust a single one of you congenital doublecrossers out of my sight. Now get back to work. I'm busy." He turned almost blindly to a mass of bloodstained papers spread over the bed.



A WEEK later the word spread like lightning through the lab. Hans had died, screaming. His screams were not due to pain. (Radiation burns are almost painless.) They were torn out of him by the knowledge that he could not live to direct the test of strength with United Stars. The cream of the jest was that, as the director breathed his last, word was flashed from Nirvana that the duel would begin "somewhere in space" at 2400 sidereal time, July 14—just three days away.

Carlos called a war council immediately after the funeral. Present were Fritz, previously the second mate; the radiation-scarred chief engineer; two shift-eyed deck officers; Greta, and Frank.

"I don't understand these orders," the Spaniard raged, twisting his moustache as if trying to tear it out by the roots. "They tell me to blast off at 2400, but they don't name the battle area. This is another New Washington trick. Do they expect me to search the universe for those confounded Space Patrol tubs?"

"The S. P. ships have just about enough range to get from the Moon to Venus, or vice versa," Fritz volunteered. "They carry very little air. We can cruise around until they exhaust their supplies, then shoot 'em like ducks." He licked his thick lips.

"I can get a radar fix on them in no time," said Greta from within her

cloud of cigar smoke. "Don't be disturbed, sir." Her eyes were cold.

"Oh!" Carlos struggled to hide his chagrin. "Dismissed. Get the ship ready for blast-off."

Shortly afterward, loudspeakers blared throughout the lab. Men ran in all directions. Food and other perishables not already aboard began to be loaded with hysterical speed.

At midnight on the fourteenth, the *Champ* nosed her way through the watertight lock of her caisson, climbed like leviathan through the miledeep cloud layer of Venus and, dripping water from her splendid sides, leaped into the ebony sky. On the bridge, Carlos, Fritz, Frank and Greta crouched over their instruments as the shadowy planet sank beneath them. Frank's heart was throbbing as he sought wildly for some method of stopping the invincible monster. He could shoot Carlos... He could jam the throttle... He could... A glance at four robot-like soldiers who guarded the doors showed him the impossibility of doing anything whatsoever; he was trapped.

"She's running perfectly, sir," intoned Fritz, his water-blue eyes fixed on the leaping indicators. "Peroxides working perfectly. Approaching speed of sound."

"Sonic it is, mister." Carlos' voice shook ever so slightly. As if in answer, the *Champ* shook, too, as she hit the turbulence. They clung to their padded seats for a moment as she rolled and plunged, then relaxed as the barrier was pierced and the thinning atmosphere whined more and more faintly along her sides.

"Stratosphere clear," Frank sang out. "On orbit."

"Hard fix on the Moon, sir." This from Greta.

"On orbit. Radar fix on the Moon. Get set for turnover." Carlos slid the throttle quadrant forward. Bells jangled throughout the hull. Like a seal the ship obeyed her helm. The bulkhead, on which they were seated, slowly became the left wall of the control room while the true floor assumed its rightful place and their chairs swivelled automatically. Otherwise, except for the shift of stars

outside the ports, they scarcely knew that the *Champ* had attained broadside-on position.

"Space drive position," called Fritz. "Cut peroxides."

"Peroxides cut." The commander's hands flew over the controls. "Atomics warming up."

● **T**HERE WAS A MOMENT when they were weightless and oddly uncomfortable, as though falling from a great height. Then they returned to normal with the first faint pulse of the new drive. Beneath their feet, translucent ports in the floor turned ruddy, then blazed with an unholy, growing splendor.

"One microsecond deviation from orbit." This from Frank.

Carlos made a quick adjustment. The telltale on the softly-glowing sky chart centered itself.

"On orbit," the astrogator amended.

"On orbit it is!" The perspiring Commander smoothed his rumpled hair and nervously adjusted his moustache. "Take over, mister. We've half an hour before the tubes are hot enough to start revving up to speed. I must inspect ship. Come on, Dave."

They found the decks in shining order, with each crew member standing stiffly at his post. The only damage from turnover had been a slight shift in a secondary radar antenna caused by a backdraft from one of the stern jets.

"Greta and I can fix that, sir," Frank suggested.

The operator appeared, swearing her usual blue streak, after Carlos called her on the intercom. The profanity still burned Frank's ears through his helmet mike after they had wriggled into bulky spacesuits, attached tools to hooks on their belts and clumped to an airlock.

"All right, lubbers," the Amazon snarled through the open face plate of her helmet at crewmen assigned to operate the door. "Get the lead outa yer pants. Open 'er up."

With hatred in their eyes, the others leaped to obey. The inner door clanged shut. As the pressure dropped, their articulated suits ex-

panded with loud pops. Moments later, the outer door slid away and they clambered up an iron ladder and onto the hull. Their breath spurting into space as jets of ice particles, they used magnetized shoes and gloves to creep like beetles along the smoothly welded plates.

As they worked together at the tedious repair a project began to form in Frank's mind. Perhaps it was the giddy reeling of the heavens about the ship. Perhaps the compressed air he breathed was too rich in oxygen. Whatever the cause, he reached the blinding conclusion that Greta must be the Underground's Agent 542.

It all fitted together. She had a key position on board; she had been kind to him. Now they were outside the ship and out of range of the spy rays. Here was his chance...

"Greta," he whispered through the intercom.

"Yeh?" Her helmet swivelled toward him.

At that moment all hell broke loose!

Up from the Venusian cloud blanket only a few miles below spurted a shower of golden sparks. All else forgotten, he blinked at them while his heart began pounding. They could only be...they were the little globular ships of the Space Patrol. Travelling at four or five G's—much faster than the speed which the *Champ* had yet attained—they started closing in. Ahead of them, he knew, would be probing their fission torpedoes.

"Smart!" He heard Greta's voice in his ears. "I've got to hand it to 'em." She started scrabbling toward the airlock, cursing bitterly.

"Not smart enough," he answered, his heart sinking. "The *Champ* will accelerate and escape them within a few minutes. Then she'll circle and..."

"That's what you think, bud. Feel the hull."

● **C**ARLOS WAS WELL aware of the danger, evidently. The great ship strained and heaved under them. Almost at

Frank's feet a plate started its seams. The truth struck him like a blow. The *Champ* was not built for close quarters maneuvering. Her mass was so great...her skeleton was relatively so weak...that she was physically incapable of dodging the flexible patrol boats. And, since her tubes were still comparatively cool, she did not have the power to outdistance them.

"Come on S. P. Come on, you sons of guns," he whooped, staggering to his feet as a torpedo caromed into one of the *Champ's* jets and glanced off to explode harmlessly several miles away.

"You stinking Pumper!" He ducked as the words ripped through the phone. The bullet meant for his brain whined against the side of his helmet. "Luring me out here when I shoulda been gettin' a fix..."

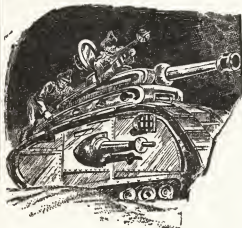
There was no time to shift his shoes. He flung himself sidewise and just managed to grab the radar operator's wrist as she fired again.

The gun spiralled into darkness and they were fighting breast to breast.

Greta was strong as an ox; she got a grip on his air hose and wrenched at the connection. He jammed an elbow into her well padded solar plexus. As she relaxed with a grunt he reached down and tore her magnetized boots from the skin of the ship.

"Now, my lady..."

She smashed her helmet down upon his in an effort to break its glass front and suffocate him. With all his remaining strength he untangled her arms from his neck and hurled her into space. A scream rat-



"They think we're animals with no human drives or courage!"

"All of us know what a small chance I have of succeeding. I can only try to pass as one of them, and bring you back the atomfire metal in such quantity that we can all live again."

Don't miss this suspenseful feature novel

★ OUT OF THE ATOMFIRE ★

by Bryce Walton and Ross Rocklynne

Leading off the May issue of

Science Fiction's Leading Bi-Monthly

FUTURE

combined with
SCIENCE FICTION
STORIES

Now on sale at all stands

tled his earphones...died slowly into silence!

Fighting for breath, he clung to the hull and gave his attention to the battle. A suicide dive by the nearest patrol boat ripped two more blazing tubes from the *Champ's* side. A lucky torp struck amidships, boring completely through the *Champ* and then driving on for several miles before exploding... Those warheads must have deteriorated, he thought bitterly.

Nevertheless the *Champ* was hurt, and hurt badly. But she was still accelerating. And she was beginning to fight back.

A torpedo tube twenty feet away swivelled and belched a wicked fish. Moments later a patrol ship disappeared in a flash which temporarily blinded the watcher.

That had been only a fission torp, he knew. But what if that crazy Carlos decided to chance one of the new disintegrators? A hit on one of the attackers would destroy the whole fleet. On the other hand, a miss... As his sight returned he stared down at Venus in growing horror. If Hans had been right, a miss would explode the planet and might make the whole solar system go Nova!

He edged back toward the airlock with frantic, sobbing speed. As he pounded for attention with a spanner, he looked over his shoulder. The attackers were nearer, but they seemed to be slowing. Why? What was the matter with the fools? Then he realized that they were moving as fast as ever but that the *Champ* was picking up speed. A few more minutes and she would be out of range.

The outer door closed behind him at last. Air pressure came up to normal. Then the inner door opened to admit him into pandemonium.

He flipped open his face plate, but shut it at once. This was the compartment punctured by the unexploded torp and most of its air was gone. Men screamed thinly and tore at their throats. Others were struggling into spacesuits. A handful were trying to patch the leaks. As he looked,

one of the latter was sucked through the rent into space.

Cursing his twenty pound shoes, he pounded toward the control room, gun in hand. He had to stop Carlos... Had to... Had to... He reeled through the door at last... and skidded to a stop!

Fritz stood there, straddling the body of his captain. His smoking automatic was holding the rattled sentries at bay.

The gun centered on the newcomer's heart.

"I'm Captain Sage, S.P.," Frank yelled. It was a long chance.

"Right!" Fritz shot a charging sentry through the head. The others turned and fled. "I just stopped Carlos in time. Get over to that radio. Tell 'em we surrender. And then," he added as an afterthought, "go back outside and bring Greta in. The *Champ's* mass has pulled her back to the hull. Saw her peeking through the blister a minute ago. She looked about ready to burst a bloodvessel with fury."

● **THEY FOUND SADIE** holding forth in style when they finally managed to jockey the crippled ex-*Champ* back into its caisson. The girl had broken out cases of traskette and she led the Incors of the lab staff in making the half-hundred S.P. men welcome when they trooped in, grinning like the youngsters they were.

"The harder they fall!" she chorled. "Just hit the big fellows before they get their feet planted, my dad always said."

"But how?... When?..." Frank stared at her blankly.

"I took over this joint soon as we heard the *Champ* surrendered. Mike has thrown in the towel. The war's over, so drink hearty. And there are steaks on the fire."

"Don't drink too hearty." Frank swept her pliant body into his arms, thankful that it, at least, was familiar. "I don't want to waste a minute hunting up that plastic surgeon so he can give you back that pug nose and those freckles."

●



EVER SINCE we brought out *Future Combined with Science Fiction Stories*, a year ago, we have been besieged with requests for the revival of *Science Fiction Quarterly*. Here it is, then; in making it up, we have paid careful attention, not only to your desires in relation to this magazine, but to the general responses to our sister magazine.

Science Fiction Quarterly is a revival, but in another sense it is a new magazine, for the old book featured reprints of well-known science fiction novels. But the situation is different, now; partly because there are a number of other magazines which feature such stories, and because the last few years have seen so many of the old "classics" appearing in book form—and partly because readers of *Future* have stated their preference for new stories, we are running only new material in this magazine, as well as in our companion title.

We want to hear from all of you, want to sift your opinions on this issue, as well as your feelings about the shape of issues to come. As with *Future*, we are including a preference coupon, which can be clipped without mutilating any story, and sent in to us. Many readers like to express their opinions, and rate the stories briefly; for those who prefer to write detailed letters, this department will be open, with the next issue, to letters. We cannot possibly publish all the interesting letters we receive, not even in a larger-sized magazine, if there is going to be space for a full quota of fiction. But we'll pick out those which seem to be most interesting for publication, add our own asides, and run them here. As with

Future, we will pay \$2.00 for each letter used, regardless of length.

The purpose of payment for letters is not, as some readers have assumed, to insure phrases of adoration, but to express our feeling that a letter we can use is worth something more than the mere "thank you" of publication.

FOR OUR next issue, James MacCreigh leads off with a longish novelet entitled, "Danger Moon", a fast-moving tale of a trouble-shooter in Lunar mines. Edwin James will be present with a novelet entitled, "The Sun Came Up Last Night", which starts off just as the title suggests and goes on with fascinating whys and wherefores. Arthur C. Clarke has a memorable novelet, "Second Dawn", which should encourage a bit of thinking, as well as provide enjoyment. Short stories will include a delightful tale of children on Mars, entitled, "No more Pencils, No More Books", by Joquel Kennedy—a young man who's made a good start in the science fiction field, we think; and Milton Lesser offers an amusing yarn called, "Wild Talents, Inc.", which title gives indication enough of the theme. There'll be others, too, but I don't want to start off by straining the prophecy department.

And, as with *Future*, the general policy of this magazine will be to provide intelligent entertainment, by which I mean: good stories of every possible variety within science fiction that I can obtain. I can't promise classics, or "great" stories; I'm not a clairvoyant. And, anyway, it is for you, the readers, not for the editor, to decide whether any given story is a "great" one. RWL



★
★

Chetzkys held the world in his hand. Would the United Nations
act to end war, or was the world doomed?

★
★

STOPWATCH on the WORLD

by Daniel R. Gilgannon

EXTRACTS, HOSPITAL CASE HISTORY No. 3007:

Patient admitted 11:45 A.M. in coma and severe shock. Pulse weak. Temperature 95. White cell count less than 2,000. Blood draining off into tissues, indicating generalized purpura. Immediate whole blood transfusions given.

DIAGNOSIS: Radiation illness. Exposure considered lethal. Probably about 1,000 roentgens.

2:30 P.M. White cell count now down to 500. Response to aureomycin treatment favorable... 3:10 P.M. Hematocrit reading remains high at 101... 3:55 P.M. Lab reports show karyorrhexis developing swiftly as more and more cells are ionized by 'hot' isotopes in patient's body... 4:40 P.M. Geiger counter set up at bedside to check progressive radioactivity of the human atomic pile... 5:10 P.M. Guided by hematocrit readings, blood transfusions increased, supplemented by albumen... 5:50 P.M. Patient conscious. Suffers violent spasms of pain. Morphine barely suffices. He appears thoughtful, moves head weakly...

Every member of the UN received the note which said: "... Give us peace within a month or I shall destroy the earth utterly." And only two men believed the sender to be capable of carrying out his threat -- two men, bucking red tape, trying to find the terribly sincere atomic physicist, Chet-zisky, before the deadline!

WITH A great effort I turn my head and see the sun going down behind the color-splashed ridges of the Coastal range. It's the last sunset I shall ever see and the end of a day that a madman with an atomic stopwatch meant to be your last.

Every cell inside me seems a glowing coal. The geiger counter clicks off a slow, steady staccato. Suddenly I find my body arching itself convulsively in a wracking outbreak of pain. There is the quick sharpness of a needle in my arm and mercifully I am numb.

Armstrong, his giant frame hunched over in the chair, watches me with a suffering look new to those hard, cold eyes of his. A good man and a loyal friend. If he weren't as stubborn and resolute as a bulldog, you might not be sitting down to your supper tonight.

My mind is strangely clear and calm, as if washed by cool, clean winds from distant space. I remem-



• Feature Novel of Deadly Menace •

ber everything vividly, the whole sequence of events that began a month ago.

I was chatting, I recall, with some students about the transuranic elements after my lecture on "The Chain Reaction of Uranium" when a lab instructor tapped me on the shoulder.

"There's an army colonel waiting upstairs in your office, Doctor Bailey."

I was frowning when I left. A reserve officer who served in Military Intelligence on the Manhattan Project, I sensed something ominous in the visit. The Korean situation already had me in an uneasy mood.

My spirits picked up, however, when I entered the office and recognized the tall dignified figure, with grizzled hair, standing by the window.

"Jim Armstrong, you old bloodhound."

"Hello, Arnold," and my hand was lost in his big fist.

Armstrong is a powerfully built man. He played a bone-crushing left end in his college days. You used to need a convoy of light tanks to make a sweep around him. I know; I played against him when I was a blocking back on the Princeton varsity. A former F. B. I. agent, he had one of the toughest and finest minds in Intelligence. Once he picked up a trail, he followed it doggedly. Like the time during the war when he went after government-contract profiteers. Despite faked invoices, bribed witnesses, and strong pressure from higher-ups, he tracked his men down and landed them in jail.

"Now, Jim, what's on your mind?" I said after we were both comfortably seated.

He put his hand in his tunic and brought out a letter which he handed me.

"I want you to read that, Arnold. Yesterday every member of the United Nations received a similar note. No one takes it seriously, regarding it as the work of a peace crank. I'd like to hear what you think about it."

I put on my glasses and opened the letter.

Dear Sirs:

You are herewith given notice to bring peace and freedom to all peoples within thirty days from this date. We are sick of your broken pledges, your compromises with principle, your verbal shilly-shallying. Give us peace within a month or I shall destroy the earth utterly.

Chetzkisky.

I RECOGNIZED THE NAME immediately. "Chetzkisky." A brilliant Polish physicist, a refugee who fled the twin tyrannies of Germany and Russia. Unknown to all but a few, he had played an important role in the Manhattan Project. His opinions and work had won the respect of the Comptons, the Oppenheims, the Seaborgs; even, it's said, of Einstein himself.

His small face, with oddly shining eyes set close together, came vividly to mind. The last time I saw him was in March, 1946, en route to St. Louis for the convention of the American Association for the Advancement of Science. I met him on the train out of Chicago. His conversation was bitter with denunciations of the world's fumbblings toward peace.

"We scientists," Chetzkisky had said, "give man the means to aid the suffering, to conserve the strength of the toiler, to bring more comfort and leisure to all. But does man appreciate our work? No! He uses our every work to steal from his brother, to cheat, enslave, even to kill him."

His eyes became glinting points as he spoke. His guttural tones grew indistinct as emotion choked him. He was a scientist of a rare order. Yet he was a humanist, too; the suffering he knew as a young Pole, son of tragically poor parents, made him that way. Chetzkisky was savagely impatient of the stupidity of man, who built himself a hell instead of a paradise. Science, he felt, could find a way to put mankind on its best behaviour.

"I see your point, Doctor," I had said. "But science has given the

world a dose of the atom bomb and it hasn't started behaving."

"Yes, I know. But there must be a way. An enforced goodness is better than none at all." He had fallen into a brooding silence, and I had left him to go to my berth. Next morning I had found Chetzisky still in the lounge car, wrapped in thought.

• • • **W**ELL, ARNOLD, WHAT do you think?" asked Armstrong, breaking in on my recollections.

"Frankly, Jim, I believe he could do it; he's that kind of man."

"That makes two of us," said Armstrong, his fingers thrumming on the side of his chair. And after a while, "Only two of us."

"You mean to say the government isn't going to make even a routine check?"

"That's right, Arnold. The Korean affair has sidetracked everything else. Of course, they may be right; it may only be a hoax. But I have a hunch it isn't. That's why I came to you."

"I have never known you to have a wrong hunch yet, Jim. I'll go along with you."

"Thanks, Arnold." Armstrong lit up a cigarette and after the first long puff went on, "Have you any idea how Chetzisky could do it? You're a scientist; you should know."

"Well, Jim, it's a fantastic possibility and it calls for some fantastic conjectures. Perhaps he's found a way to produce a chain reaction right down into the earth's core; perhaps he can produce a radioactive cloud of colossal proportions. Then again he may have a way of activating uranium, thorium, and radium deposits all over the world by ultra-high frequency radiations."

"You don't think," said Armstrong, "that there might be atomic bombs cached in strategic places throughout the world, ready to be set off on a certain day by time mechanisms or confederates?"

"Hardly. That would call for such widespread activity and the work of

so many hands it couldn't escape detection. Besides, to achieve the annihilation Chetzisky promises would take thousands of bombs. Such production is beyond us as a nation, never mind an individual."

Armstrong got up and walked restlessly about the room. "Arnold, I was only worried when I came here; now I'm terrified."

"What do you plan doing, Jim?"

"We've got to catch up with him fast. We can't take the chance it's a hoax." The square jaw hardened and the muscles tightened in the lean, weather-beaten face. "Will you help me, Arnold?"

"Of course. I can easily get a leave of absence for government business and..."

"You won't be able," Armstrong broke in, "because it isn't government business. Remember there are only two of us who believe this note. Whatever help we'll need I'll have to wrangle by pulling my rank." He pointed to the colonel's eagles on his shoulders.

"But I have six more lectures to deliver this semester, Jim; that will tie me up for three weeks."

"That can't be helped. When is your next class?"

"Tuesday. My lectures are Tuesdays and Thursdays."

"Good. That gives you lots of time to work with me between lectures. Beginning right now."

"But—"

"Start packing some things. I'll arrange for you to fly to the atomic labs and take up Chetzisky's trail from there. You'll have the entire weekend to dig up something." He took me by the arm and hustled me out of the office.

While I rummaged in my rooms for a luggage case and packed some clothes, the energetic Armstrong sat on my bed smoking a cigarette and filled me in on the details he had rounded up in the past twenty-four hours. The man was a wonder the way he had gone to work unofficially on the Chetzisky case while still handling a regular official assignment on the leakage of troop movements.

"Doctor Chetzisky got a year's leave of absence from the atomic labs; that was eight months ago. A month ago he dropped out of sight altogether."

"Did he tell anyone where he was going?"

"No, he didn't. But he did have an interesting chat with a visiting English chemist, Doctor Chaslington, the Nobel prize winner. Told Chaslington that our fission methods are as out of date and wasteful as the first automobile. Chaslington didn't press him for further information. Matter of good taste and manners with the Englishman. Besides, he probably figured Chetzisky was simply projecting his fancy into the future."

I grunted as I snapped the suitcase lock shut. "By the way, Jim, have you traced any of the letters yet?"

"No." Armstrong paused to light a fresh cigarette. "That's what I'll be doing while you're away. Ready?" He dropped the burnt-out match in an ash tray and swung my bag off the bed.

FIVE HOURS LATER I WAS air-bound out of Washington for the atomic labs. As the lights of cities and towns flashed below me, a panicking sense of responsibility seized me. Two of us alone were trying to save two billion people from a deadline of annihilation; forced to do it in our spare time as if the rescue of a planet was a casual hobby for leisure hours. I struck an angry fist into the palm of my hand; a sickening feeling of hopelessness took me by the pit of the stomach.

My glance fell on the newspaper open on my lap. A lovely debutante stared up at me, smiling. "*Wedding Set For Next Month*," the caption under the picture announced. *If there is a next month*, I thought. Millions like the debutante were thinking of some bliss next month would bring—the young mother-to-be; the old couple approaching a golden anniversary celebration; the prisoner awaiting release; the author looking forward to his first pub-

lished book. If Armstrong and I failed—I shook off the thought of it and turned to the sport page. The print grew dim behind a procession of images of happy brides, bright-eyed old couples, beaming, confident young men, and I fell off into an uneasy sleep.

At the airport the Director of the Atomic labs was on hand to meet me and take me to his home for breakfast. I ate hurriedly and waited with evident impatience until my host drove me over to the atomic labs. He showed me into Chetzisky's office and the hunt had begun.

The office was a small neat room at the end of a corridor. I inspected every nook and cranny of the place. I took out the desk drawers, looked for stray papers, leafed through the scientific volumes in the bookcase. I checked the wall calendar for notations or circled dates. I searched everywhere and found nothing.

From the office the Director drove me over to the "prefab" residential section where Doctor Chetzisky's assistant, Roger Budnick, lived. He was just sitting down to a last minute coffee when we came in. The Director introduced us and left. I joined Budnick in a coffee and questioned him about the Doctor. He answered frankly but he had no information.

Disgusted and discouraged I accepted Budnick's offer to ride with him to the labs. His 1938 Chevrolet was parked in front of the house. I noticed the badly dented fender as I walked around to get in the car, and commented on it.

"I got it the same night Doctor Chetzisky had his accident at the lab."

I froze in the act of sliding into the seat beside him. "What accident?"

"Oh, the doctor was doing some work alone one night. Something went wrong and he telephoned for me to come over right away. When I got there everything was all right. He apologized for disturbing me."

"Did you notice anything out of the ordinary?"

"No, I don't think so. Except the

Geiger; it gave a count a little above normal."

Somewhere here was a lead. I felt it, but I couldn't seem to get my hands on it. "Did he have any visitors about that time?"

Budnick lowered his head, studying the gravelled road in a concentrated attempt at remembering.

He shook his head slowly. Then his memory stirred. "Yes, I remember. A day or so before the accident he had a visitor. Some geologist, I believe; that reminds me, too: that night in the lab the Doctor had one of those boxes mineral samples are kept in. It was very heavy, as if it was solid lead."

Excited now, I shot my questions in rapid fire.

"Do you know the geologist's name?... Would you remember it if you heard it again?... Good... Can you get the day off?... Then go back home and start remembering that man's name for all your life's worth. Get a telephone directory. Go through it. Try anything but recall that name."

2

I LEFT Budnick a little dazed by my emphatic manner and whipped over to the headquarters of the atomic labs. There I checked on back visitor's lists but evidently the Doctor's geologist friend hadn't visited him on the job. I dropped in at the telegraph office and wired Armstrong in Washington for a list of Chetzisky's acquaintances, the names of the members of the National Academy of Sciences, Association for the Advancement of Sciences, the Geological Society, the OSRD.

Then I went back to Budnick and began a mental third degree, using a rhyming dictionary, a genealogical compendium and the collection lists from an old church bulletin. Hour after hour I kept it up. Others had seen the Doctor's visitor, but only Budnick knew the name. It was the only clue I had to go on.

After eight solid hours, broken only by coffee and sandwich snacks, Budnick was begging me to call off the grilling. "Give me a break. Let me get a little sleep." He clutched his head as if he were trying to keep it from flying apart. His eyes were swollen and red.

"All right," I said; Budnick was at his limit. Besides, I had to wait for Armstrong's reply to my telegram.

Budnick rolled to the floor and went to sleep on the spot. I sank down in an armchair, tired, but too tense to sleep, and waited.

Three hours later Armstrong's reply came. I ripped the yellow envelope open.

CANNOT GET INFORMATION YOU
REQUESTED BECAUSE OF NEW
SECURITY REGULATIONS.

Armstrong.

I slumped back into the chair, swearing silently at every bureaucrat in Washington. Served them right if we let Chetzisky fry them. But it meant being fried ourselves; I looked over to the snoring Budnick and decided on a trick I had seen Army interrogators work during the war.

"Come on, Budnick," I said shaking him. I called to his wife to bring some fresh coffee. After he had gulped down two steaming cups, I opened up on him again.

"Abeles, Aberon"... For two hours I shot names at him from a telephone directory without let-up. My voice turned hoarse. Budnick's eyes went sick and he began to turn green, the color of corroded copper.

This was the moment.

I stopped my staccato fire and walked over to the window. Silence settled in the room like a velvet hush. It was soothing, like cool cloth on a fevered forehead.

I went over to Budnick, offered him a cigarette, and lit it for him. He took a long, contented puff. Casually I placed an ash tray at his elbow.

"Thanks," he said.

Then, taking a grip on my banjo nerves, I spoke as quietly as I could,

"What did you say his name was?"
"Pilon."

The name sprang from his lips before he realized it. He stared at me dumbfounded, then he was on his feet, yelling like a man suddenly freed from a nightmare. "That's it. Pilon. Pilon. Why didn't I think of it before?"

I said amen to that. Exhaustion took hold of me. I just wanted to sleep. But first I had to wire Armstrong to find out all he could about a geologist named Pilon, first name unknown. Then, without bothering to crawl between the clean sheets, I fell on the bed in the Budnicks' spare room and sank into a black void that kept receding into a deeper and blacker void.

EXTRACTS, HOSPITAL CASE HISTORY NO. 3007:

6:05 P.M. Patient rapidly weakening. White cell count now barely 100. Pulse very feeble. Transfusions now given continuously. Emergency call to Van-couver to fly in fresh supply...

6:10 P.M. Pain more intense. Morphine given at increasingly frequent intervals. Patient still appears rational.

The days following the visit to the atomic labs and the Budnicks were, I remember, tedious, floor-pacing days.

Back home at the University I mechanically prepared my lecture notes and waited tensely for word from Armstrong. Tuesday came without news. I gave my lecture, stumbling stupidly several times, so great had the strain on me become. I could stand it no longer and immediately after class I phoned Armstrong in Washington.

He sounded high-strung himself. Unable to get official cooperation he was being forced to dig up the information on Pilon by devious methods. "We have to get official support, Arnold," he snapped angrily. "Otherwise, some of these Washington worshippers of red-tape, clerks parroted, 'That's another department, sir,' and 'put it through channels' sticklers are going to kill any chance of our tracking down Chetzisky."

"And kill two billion people," I added with wry humor.

When I hung up, I had my mind made up. I was going to look up an old Princeton schoolmate, Nevil Oxford, now a famous newscaster for the Federal Broadcasting Company.

• NEVIL WAS SIPPING coffee from a paper cup as he bent over the news bulletins on the clattering teletypes when I entered his office in the F.B.C. Building. After a preliminary exchange of the usual alumni gossip I got down to cases and told him about Chetzisky.

"And you really believe he could do it, Arnold?"

"I do. Most certainly."

Nevil's face hadn't much color in it now. "Come on," he said, "Let's go downstairs; I need a drink."

Over scotch and sodas I hammered away at him, trying to get him to break the Chetzisky story on his eleven o'clock broadcast.

"I can't, Arnold. We've been asked to lay off the sensational stuff. Besides, it would start a panic. Remember what happened a month ago when some jaded announcer pulled the gag about the Russians being in the outskirts of the city."

"But, Nev, it isn't a case of Orson Welles tom-foolery; it's a life and death necessity of stirring the government to action through public opinion."

"I can't." He turned to the bartender and ordered a double scotch. No soda this time. "It isn't that I don't believe you, Arnold. It's—ah, hell."

He threw down his drink quickly. For a moment he stood twirling the empty glass in his hand, staring at the lone amber drop rolling in arcs at the bottom. "You know, Arnold, I'm scared. Scared stiff," he said suddenly, turning to me. He looked at his wristwatch. "I'm on in half an hour; maybe I will tell them."

I watched him walk unsteadily out of the bar, his shoulders set squarely in an attitude of defiance. I toyed with a drink for twenty minutes, then went upstairs to the studio re-

ception room to listen in on Nevil's broadcast. Twice during it he paused significantly as though he was going to break the Chetzisky story, but each time he must have lost his nerve. Or the effects of the scotch had worn off too quickly. Disappointed, I left without bothering to say goodbye to him.

Thursday I phoned Armstrong again. He had no word on Pilon. He had succeeded, however, in tracking down the man who sent out Chetzisky's letters. The man was a retired school-teacher, an old friend of the physicist, to whom Chetzisky had given a number of letters and telegrams to be sent out according to a prescribed schedule. That was as far as the school-teacher's participation went.

The next few days I acted like a caged lion, my eyes cocked fearfully on the calendar, waiting for something to happen. My nights were sleepless. It was nerve-wracking to stand by and watch time run out on the world. And on myself. At first, my stomach simply turned without relish from food; soon, it was turning sick at the sight of it.

● **A SPECIAL DELIVERY** came from Armstrong Monday night. It was a teletype he had torn right off the machine and rushed to me.

IDENTIFICATION MADE AS HECTOR PILON. AGED 34. DOCTORATE IN GEOLOGY, COLUMBIA U. SPECIALIST IN RADIOACTIVE ORES. MEMBER OF COMMISSION NOW CHECKING URANIUM DEPOSITS IN CONGO. WAS PRESENT IN U.S. DURING PERIOD QUERIED.

There was a hastily written postscript. "*Will arrange passport, plane passage, etc., for you. Draw some money from bank for expenses. Armstrong.*"

My heart pounded. The Congo! The site of the world's richest uranium deposits, it would be just the natural workshop for Chetzisky.

Perhaps, I mused, trying to reason out a pattern, this fellow Pilon dis-

covered or heard of a new ore find in, say, the jungle area east of the famous Katanga district, and told Chetzisky about it.

Of course, I admitted to myself, there was the problem of how the Doctor could get equipment into the area unnoticed. But maybe the answer lay in what Chetzisky had said to Chaslington; maybe there was no equipment problem. Who could tell but that Chetzisky may have found a simplified method of handling and working radioactive ores? He had told Chaslington our present methods were utterly outmoded, hadn't he?

It took Armstrong nearly a week to arrange for my trip to the Belgian Congo. He sent cables to Belgian officials at Leopoldville and to George Disney, chief of the commission with which Pilon was working, inviting their cooperation. In this way he hoped that the prestige of his title and name would lend a semi-official tone to my mission.

Meanwhile, Nevil Oxford phoned me twice, inquiring about our search for Chetzisky. His voice betrayed his uneasiness.

On the morning of my departure from Idlewild the *New York Times*, as if given confirmation to our conjectures, carried a front page story announcing a new uranium deposit in the Katanga area. Two university scientists who assayed samples stated the ore was among the highest grade yet discovered. Yield about three kilograms per ton.

As I boarded the *Constellation* I was confident that the chase was coming to an end. I was feverish with a sense of an approaching climax. For a long time I sat in quiet, optimistic thought, staring out the window port at a blue monotone of sky.

After lunch served by a stately blonde stewardess, the Englishman across the aisle struck up a conversation with me. He knew Africa very well, having served there many years for the Unilever enterprises.

He tried to teach me Swahili in one easy lesson, a sort of Esperanto

devised by the Arab slave-traders and the *lingua franca* throughout Africa. I was interested, but a poor student. When I finally crawled into my berth at day's end, it was to dream of tangled jungles of African cedar and wild rubber trees, with limbs festooned with great, wrist-thick vines and monkeys scolding from the tree tops; and through it all the steady chatter of natives saying over and over again, "Simba," "Mungo," "N'Gana," "Bwana," stray bits of Swahili floating in my mind.

When I awoke, we were three hours out of Santa Maria in the Azores after refuelling. I took out my pocket calendar and checked off another day. Only twelve more remained to Chetzisky's deadline.

The plane swung down over the west African coast and then turned inland. Thirty-two hours after leaving Washington, it touched down on the runway at N'Dolo airfield in Leopoldville, Belgian Congo.

"Zero hour," I thought with a quiver of excitement as I stooped through the cabin door onto the landing ramp. On hand to meet me was George Disney, head of the commission, who drove me to the Hotel Albert where I was to put up. He was the leisurely type. Pilon, he said, was up country. He could be called down, or I might go up, just as I wished. In any case I was to consider myself a welcome guest of the Disneys. Disney's conversation had a soft, easy charm. He sipped his aperitif without any sense of urgency, an affable victim of the tropical languor.

I proposed leaving right away to meet Pilon. His eyes took on the hurt look of a polite host whose suggestions have been refused. I pressed my point and he reluctantly consented to arrange transport. He left without finishing his drink, a silent rebuke for what he felt was my unseemly haste, I suppose.

In half an hour I was flying over the wooded savannahs of Kwango towards the mountains of Lualaba Kasai. The plane set down at Katanga eight hours later, where I fretted for twenty minutes before the commis-

sion jeep picked me up for the bumpy ride along a *piste* through a forest of giant trees.

3

I FOUND Pilon at camp, sitting in his tent in the middle of a jungle clearing, making coffee over a Primus stove. I introduced myself. He said he knew I was coming; had received a message a few hours before from Disney. I accepted his coffee and eased into a casual interrogation.

I wove my opening questions around bits of information I had gleaned of Pilon's movements from Disney and the jeep driver. I wanted to test his straightforwardness.

But I had to be careful about my questions. Having no official credentials, I dare not overstep my mark and draw a challenge for them. Disney had accepted me, without question, solely on the strength of Armstrong's cable.

"Just think," I said with the proper air of wonderment, "last Tuesday I was lecturing quietly in a classroom and here I am sitting in the jungle. What were you doing last Tuesday?"

His blue eyes narrowed. "Tuesday?" He paused. "Yes, I was checking ore samples up in the Lake Mwera region."

That was true, I knew. Pilon continued to answer me truthfully and with apparent frankness. But I was not satisfied; his eyes had a sly, mocking look to them as if he were really aware of the purpose of my visit and enjoyed this verbal sparring. I distrusted him.

Suddenly he broke in vehemently on one of my queries, "Why all these questions? Am I suspected of subversive activities?"

I said nothing, scrutinizing him closely. I felt he was acting, his anger a mere pretense to force me to the point of my visit. I stalled for time to think, refilling my cup from the pot on the Primus.

"May I see your credentials, sir?"

I froze in the act of stirring my coffee. Was Pilon just being nasty? Or had the timidity of my questioning given me away?

I couldn't afford to be trapped. Not only would my trip to the Congo be fruitless, but worse, Armstrong would be hauled on the carpet for his part in it and severely disciplined. I myself would probably face ugly disloyalty charges. A bold bluff was my only way out.

I laughed good-naturedly. "After having seen Mr. Disney I didn't expect to have to carry my papers around with me. They're a downright nuisance to carry around in this outfit I'm wearing." I gestured to the khaki shorts and short-sleeved shirt I had on.

He laughed, a forced, hollow laugh. He was uncertain of his ground.

"Of course," I went on, "if you wish, we could go to Leopoldville and..."

"No, that won't be necessary. I'm sorry. I lost my temper. Living alone in this jungle wears a person's nerves a little thin."

I nodded understandingly.

"Dr. Pilon, I really came down here to make inquiries about Doctor Chetzisky."

"Yes?" His eyes took on that cunning look again. He knew something, I was sure. I wondered how much.

"You knew him, I believe."

"I did. In fact, I visited him once, you know." He looked at me, a suppressed grin trembling in the corners of his thin mouth, with the air of a mouse that has deftly sidestepped the swiping paw of a cat.

"A peculiar man, wasn't he? Had some strange ideas."

"Peculiar, yes. In the same sense that Mahatma Ghandi was peculiar," he snapped at me, the blue eyes gleaming with a fanatic's adoration. "As for strange ideas, bringing peace to this fear-ridden planet can hardly be called one."

• **A**H, SO PILON KNEW! HE realized immediately he had given himself away and became mo-

rosely truculent; I had reached the end of the line with him. But I had one card left: Pilon's diary.

While talking to him, I had spotted the marble-edged ledger on the crate-improvised table in the corner of the tent. I was sure it was his journal; I hoped earnestly that it was.

We drank a final cup of coffee in silence while I ransacked my brain for some subterfuge to get Pilon out of the tent. In the end the whole thing was very simple. I asked him if the jeep was ready to take me back to Katanga. He went outside to see.

I went quickly over to the table, slipped the ledger from under two other books, technical journals, and leafed swiftly through the pages. They were dated. I was in luck; it was a diary.

I turned to the date of Pilon's reported visit with Chetzisky and there I found the entry:

JUNE 21:—Visited Doctor Chetzisky today. A brilliant man, deeply concerned for the world. His words moved me as he spoke of policing the world into peace. His hopes, he told me in strictest confidence, rest on an ore discovery by Ian MacRoberts of British Columbia, a university geologist, who seems to have found a new radioactive element easily controlled. The Doctor has received a sample from MacRoberts today to verify the preliminary spectroscopic analysis. When I left, Doctor Chetzisky shook my hand warmly. I wished him success and promised secrecy. He is one of the obscure great men of our times.

I barely finished reading when Pilon's footsteps sounded outside. I closed the book quickly and greeted him when he entered. The jeep was ready, he said, and wished me a pleasant and safe trip to Katanga.

The jeep was just starting off when a native ran up, shouting that Bwana Pilon wanted to see the driver. I sat in the car, waiting uneasily, remembering that I hadn't slipped the ledger back in place; I hoped Pilon hadn't noticed.

Fifteen minutes went by. I climbed out of the jeep and went in search of the driver, who was sit-

ting in Pilon's tent, regarding his watch from time to time.

"Doctor Pilon asked me to wait here for twenty minutes before going," the driver explained. "He said something about he might have a package."

My eyes wandered to the corner table. I drew a deep breath. The ledger was gone.

"I guess we can go now, sir." The driver left the tent.

I followed him and got into the jeep with a growing foreboding. The sun was low in the sky, fading rays dissolving into twilight. I hunched low in my seat, the flesh creeping on the back of my neck as if a gun was sighted on it. Now that Pilon knew I had read his diary, there was good chance he might try to keep me from getting back alive to Katanga. With the ruthlessness of the fanatic Pilon might feel he owed that much to "the great man" Chetzisky.

A mile from camp the trail broke out of the jungle onto a swaying suspension bridge across a deep gorge. The driver inched the jeep across. Looking down I felt nauseous; a fall and a man was a shredded pulp.

Half way across the span it happened. A rifle cracked. The air whined at my ear. The driver slumped stupidly against me and the jeep swerved crazily out of control. I leaped out on the bridge just as the jeep dropped into the gorge. I ran a few yards and hurled myself to the boards; a bullet whistled over me.

I was on my feet again. Another shot rang over. I thanked God for the sway of the bridge; it put the crimp in anyone's marksmanship.

I disappeared into the shelter of the jungle on the other side. The battle was joined; it was Pilon's life or mine. He couldn't let me live, and I couldn't let him. If I got away, he would get in touch with Chetzisky who probably wouldn't wait till the deadline to pull the switch.

● **CROUCHED IN THE BRUSH,**
panting and slightly dizzy

from unaccustomed exertion, I watched Pilon stalking across the bridge, rifle at the ready. My breath began to come easier and my head cleared.

He was across now. He moved into the trail, eyes straining into the shadows. For a moment I had the mad notion of rushing him until I realized in what poor condition my academic life had left me for any wrestling with an outdoor type like Pilon.

Instead I would lure him to the edge of the gorge. Disturbing the undergrowth to look for a stone would be suicide; the noise would attract his attention and fire. As a substitute missile I slipped off my wrist-watch, clipped my pen on the band, and lofted them across the trail into the brush near the gorge, praying they would make enough noise.

They did.

Pilon turned sharply. For a moment he listened. I was certain he would hear my heart pounding wildly. Cat-like he made his way to the spot where my missile fell, probing the leafy undergrowth with the rifle. Then, calling on four years as blocking back at Princeton, I raced out of hiding. Pilon half twisted in surprise as I smashed into him with a rolling hip block that sent him teetering backwards over into the gorge. I can still hear that long shrill scream of terror echoing in my ear.

The impetus of my drive carried me into the bush. I disentangled myself and looked over into the dry, rocky bed of the gorge. Two forms lay motionless there, in dark spreading splotches.

Thoroughly shaken, I stumbled over the bridge and back along the darkening trail to Pilon's camp, where I collapsed in a stupor on the dead man's cot, too exhausted for superstitious misgivings, and fell into a deep sleep.

In the morning a native runner went into Katanga to notify the authorities of the deaths and to have another jeep sent out for me. For two days I was held up in Katanga

during the inquest and inquiry. Disney flew down to talk with me, angry that I should upset the leisurely routine of his existence. My explanations, from which I omitted any mention of Chetzisky, didn't satisfy him, but he let matters rest rather than perturb himself by probing further.

EXTRACTS, HOSPITAL CASE HISTORY NO. 3007:

6:35 P.M. *Thrombopenia very far advanced. Blood bubbling at patient's lips. Lab reports heparin in blood stream...* 6:50 P.M. *Noted radiologist flown in by jet bomber from Los Angeles. Says there is no hope. Radioactive element absorbed through lacerations in patient's body and is now fixed irrevocably in bone marrow. Patient seemed to smile at radiologist.*

I wonder who that serious looking gentleman is who was just examining me. I couldn't help smiling at his pompousness; you'd think he was a judge reading out a death sentence.

Where was I? Oh, yes, back in Katanga. From there I wired the University that I would be unable to give my last two lectures of the semester. The Congo dateline on the telegram must have raised the shaggy brows of the venerable Chancellor who till then thought I was no farther away than my rooms at the opposite end of the campus.

Armstrong I had cabled immediately with the information about MacRoberts. I was sure that while I marked time in Africa he would be starting the chase in far-off British Columbia. Still, the waiting made me restive, and more so when after leaving Leopoldville I lost another day. Engine trouble forced the *Constellation* down at Accra, where foul weather closed in to keep us grounded.

Finally back in Washington, I ticked off another day on the pocket calendar. Only seven days more.

I went directly to the Statler where Armstrong had his rooms. He greeted me enthusiastically, ordered up some drinks, and plunged right into business. "Arnold, thanks to the lead you picked up in the Congo, we

have a good idea where Chetzisky is."

Armstrong unfolded a map with places circled in red and notations scribbled in. "He is somewhere in this area north of Ootsa and Burns lakes. Trappers in the region have identified his photograph. Also we've traced some significant shipments into the area. Paraffin, boron-steel, graphite among other things."

They were significant; they were all materials that could be used in an atomic reactor, principally as moderators to control the neutron irradiation.

"Any word of MacRoberts?" I asked.

Armstrong gave me a quick briefing on the Canadian geologist. Single, fairly well off, Lan MacRoberts spent his summers away from his teaching chores at the University prospecting for minerals, chiefly in one of the least explored portions of the continent, the Rocky Mountain Trench. A transport lost there in 1940 has never been found.

Notes found in MacRoberts' lodgings in the Vancouver suburb of Kerrisdale revealed he had discovered a strange new mineral of marked radioactivity. He made his first find near Lake Babine and traced outcroppings of it as far south as lower California. From his fragmentary data MacRoberts was convinced that a vein of this mineral dipped through the earth's crust at an inclination of 27°. Six months ago he had been given a leave of absence from the University; since then he had been seen twice in the company of a man fitting Doctor Chetzisky's description. Information indicated both had headed for the Interior.

"Well, Jim, what are your plans?"

"I have arranged already for groups of searchers to move secretly out of Prince George and Hazelton." His pencil slid over the map. "But you're the key man, Arnold; these groups will only close in on the word from you.

"You're going to fly into Tweedsmuir Park, ostensibly as a tired business man on vacation. It's not

unusual up there. Even Hollywood stars like Crosby have escaped into the Tweedsmuir reserve for rest and a new horizon."

● **I** NODDED THAT I understood and rubbed my day old stubble thoughtfully.

"And yes, don't bother shaving. A bit of a beard might be as good a disguise as any if you meet Chetzisky. He may still remember you."

"By the way, Jim, how did you manage to get government support for your idea?"

"I didn't."

"You didn't," I said slowly, "Then how—"

"I'm using my assignment to track down the leakage of our troop movements to the Orient as the apparent reason for my maneuvers. What more likely than such a spy ring should have its headquarters on the Pacific Coast and perhaps a transmitter deep in the mountains." He grinned like a pleased cat.

"You mean none of the Canadian authorities knows you're really after Chetzisky!" The man's gall flabbergasted me.

"That's right."

The bell-hop knocked on the door and entered with our drinks. I gulped mine down and sagged back in a chair, hoping for my brain to clear and find all this was happening only in a nightmare, the result of overindulging in my favorite onion soup.

But it wasn't just a bad dream. "...above all you must creep up on Chetzisky," I heard Armstrong saying.

"Seven days doesn't leave much time for creeping."

"I know," Armstrong was grim. "But the Indian should help."

"What Indian?" I exclaimed. The nightmare feeling deepened.

"I forgot, Arnold. When Chetzisky and MacRoberts disappeared into the wilds, they took two Indians along that had been with MacRoberts on previous trips. Fortunately there was a third Indian, a young boy, who went out once before with MacRoberts. We're counting on him

to guide you to wherever the Doctor is."

I mulled over that while Armstrong got on the phone and booked us on the next flight to the coast.

Fifteen hours we were in Vancouver conferring with Major Burley of Canadian Military Intelligence, a precisely neat man who made me painfully self-conscious of my unshaven face. I met Johnny Eagle for the first time. He bore little resemblance to the lithe, stern-eyed Red man of the movies. A dumpy boy of fifteen, dressed in baggy pants and a pullover, he escaped the classification of nondescript only by his eyes; they shone with a quiet luminosity, like lights through a mist. They gave me a feeling of confidence in him.

According to Johnny Eagle, the place we wanted was north of Burns Lake. He didn't know the exact spot, but he remembered two things nearby: a rain-rotted cross on a mountain grave and two peaks that MacRoberts had christened the Twins because of their identical appearance.

It wasn't much to go on, but it was something to keep alive our hopes of getting Chetzisky before it was too late.

"Good luck," Major Burley said, "I hope it won't be a wild goose chase."

"It better not be," Armstrong said tersely. "You better get going, Arnold. I'll keep in touch with you by radio from Burns Lake."

● **OUTSIDE THE MAJOR'S** office I almost collided with a code clerk hurrying in with a message. I thought nothing of it till I was on the street climbing into the car that would take me to the airport and a voice called sharply after me.

"Sir, Major Burley wishes to see you in his office right away."

I went back upstairs, cold with foreboding, suddenly recalling the excited look on the code clerk's face.

Armstrong was standing by the window, looking disconsolate, when

I entered. The Canadian said nothing but handed me a decoded message.

ATTENTION CANADIAN INTELLIGENCE: COLONEL ARMSTRONG SUSPENDED FROM FURTHER DUTIES FOR OVERSTEPPING HIS AUTHORITY. WILL REPORT BACK TO WASHINGTON AT ONCE TO FACE CHARGES.

"Now," explained Major Burley sternly, "you will understand why I must cancel your plans, sir."

I blew sky-high.

"Go ahead. Let the world blow up behind their stuffed-shirtism and quintuplicate file copies and pedantic memos and see how well that will protect them when the earth goes 'puff'."

The Major stared at me in frank bewilderment. This "puff" business was something entirely new to him.

I felt a strong grip on my arm.

"Easy, Arnold," Armstrong was saying, a warning look in his eyes. "This is one moment when we have to keep our heads, or more than just us will lose them. Hold tight here for a day. Washington probably got Disney's report on your trip to the Congo. I think I can talk my way out of the mess. If I don't," he shrugged hopelessly, "it's all up to you."

● ALL NEXT DAY I SWEATED

for a word from Armstrong. About five o'clock a call came from one of his friends in Washington. He was under house arrest but still striving desperately to wake the government up to Chetzisky's threat.

I drink lightly but if at that moment I had a bottle I would have emptied it at one swift sitting. Instead, I took an ice cold shower to calm myself. Half-way through the shower I ran out and picked up the phone to put in a long-distance call. I had an idea.

Nevil Oxford answered. I poured out my story. His voice shook as he talked with me. I had him on the ropes and I kept pouring it on. The earth had only six days to live unless the nation did something about

it. We were just a stone's throw, so to speak, from catching up with Chetzisky. What was needed was to rouse public opinion and force the complacent hand of the swivel-chair bureaucrat. As a crusher I told him that the world-wide radioactive count had gone up five roentgens. If only he knew how absurd that was...but it turned the trick.

"All right, Arnold, I'll go on the air tonight with the story," he said wearily with the tone of a man acquiescing in an inevitable surrender.

I dressed, arranged for a plane to take me and Johnny Eagle into Tweedsmuir early next morning, and settled back with a drink for Nevil Oxford's broadcast. The commercial came on. I gritted my teeth and waited. Then Nevil broke in, his voice tense and pregnant with fear: "Good evening, ladies and gentlemen. Tonight I am breaking the biggest story of my career. It has taken me a long time to decide on telling it. But it must be told."

There was a pause. I sat bolt-upright. Had he lost his courage again? Then Nevil was speaking again, his tone almost inaudible. "If a letter that went out to the governments of the world a month ago is true—and I fear horribly that it is—you and I have only six days to live. The world will end next Monday. Yet nothing is being..."

The voice was cut off and organ music filled the air waves. I stood up and flung my glass at the wall. You warn them and they throttle you; the ostrich hadn't a thing on them.

I went down to the lobby and bought a few magazines to read myself to sleep with, but at two in the morning I was still awake. I put on the radio to get some slumber music. Instead there was a deluge of breathless newscasts and special bulletins. Nevil had started things popping all right, despite being cut off the air. Curious, angry newsmen had dug up the story and spread it in the headlines of *Extras* from coast to coast. At this moment it was being shortwaved to every part of the world. Already public opinion was

beginning to simmer. A special dawn meeting of the cabinet was called. I fell off to sleep smiling; there was hope.

4

IN THE morning when I read the newspapers on the way to Lulu Island airport, my mood darkened. While public opinion shrieked for action, successive conferences on what was to be done ended in decisions to hold other conferences on what was to be done. Horn-rimmed intellectuals argued hotly whether the Chetzisky question was not one for United Nations discussion. And we make fun of Nero who fiddled while Rome burned!

The day was clear, ideal for flying. It was the fifth day before the end of Time. I bit my lips and looked out at the earth falling away under us.

Four o'clock that afternoon our pontoon-equipped plane swept low over the spruce and jack pine and meadows of wild hay for a smooth landing on Burnas Lake, our approach scattering a brood of mallard ducks. We refuelled and were off again. I intended to fly on, watching for the Twin peaks and when darkness fell, to land on one of the mountain tarns and make camp.

Below us the somber stands of evergreen were being swallowed up in the snow spreading out from the western ridges. Turning up a valley corridor I saw the peaks towering above us, summits capped with white and the forested flanks gashed with couloirs in which the snow gleamed.

I blinked often. The air was rough now, tossing our cabin plane, and the constant flickering of the view made my eyes uncertain and my head ache. Suddenly I became aware of the clouds, a few bedraggled tatters at first, close to the timberline, like wisps of angel hair on a Christmas tree. Then as the plane swerved through a narrow pass and

up another valley, I saw the sky devil himself—a billowing, black-bottomed cumulus rolled up on itself three miles high.

I went forward to the pilot. He was peering anxiously ahead of him. "Don't you think we better land soon?" I asked.

"The sooner the better, sir. I was figuring on landing up at Schwartz's, a trapper who has his diggings on a lake up always but we won't make it with that storm." He paused as a sudden current sent the plane off keel and he struggled to bring it level again.

"I think I'll swing west over that ridge," he pointed to a low mountain wall. "I remember a few lakes over there."

The plane banked obediently and swung round. He flipped on the radio, dialling in only ghostly wheezes.

"This country plays the devil with radio, sir. Minerals I understand."

I went back to my seat. Across from me, Johnny Eagle sat motionless, his eyes never leaving the cabin port, on guard for the Twins. The ridge passed below us. Suddenly darkness enveloped us; we had run into a squall. The plane nosed upwards to ride above it. I shuddered. Flying blind with mountains sheering up on either side is suicidal.

When the plane finally broke through, the sun had set. Only a flash of lavender over the western rim remained of the day and soon that faded. The pilot now flew by a faint twilight that mountain snows reflected. The thunderhead cumulus we had evaded was spreading laterally towards us, threatening us with pitch black darkness. I was uneasy; so was the pilot who sat tautly upright. Johnny Eagle remained gazing out at the pallid landscape.

"We're all right now," the pilot shouted back. I went up front.

"There it is." He pointed down to the right. For a moment I saw nothing; then the glimmering form of a lake appeared obscurely.

The plane dipped gently towards it. The pilot's eyes strained to keep the fading glimmer in view, at the same time trying to judge the mass

of darkness that was the timber. He did a miraculous job skimming in over the treetops and was just sweeping in over the water for his landing when a sudden gust struck. The plane tilted its nose up abruptly, bucked, then dropped like a load of lead. It slapped the water hard and skidded straight for the wooded shore.

Desperately the pilot tried to bring the craft around, but it plunged relentlessly forward and up on the narrow beach, skittering wildly as it left the water. The tail cracked sharply as it whiplashed against the trees.

● **SLIGHTLY BRUISED AND** shaken, we climbed out, but that's all. The pilot got out his torch and we clustered about a map he spread on the ground.

"This is where we are." He indicated a spot bare of all place names and west of the area in which Chetzisky was reported. In case of an air search this would be last bit of terrain searched. It was far off our expected course. I recalled the story of the transport lost these ten years in this wilderness and unpleasant tingling crept up my spine.

Then I remembered Chetzisky and realized with a sour humor that worrying about time in terms of years was optimistic. Time now was only a matter of three days.

And moping like this wouldn't add to them.

"Check the radio," I snapped, turning to the pilot; "see if you can raise Burns Lake."

He climbed back into the plane. The lights went on; at least, they still worked. I turned to Johnny Eagle, "You better get the sleeping bags out and turn in yourself. There's nothing to be done till morning."

I got in the plane.

"Any chance of fixing it?" I asked, watching the pilot's frantic flickering of switches.

"I'm trying to. It may only be a case of a broken tube from the jolt we had. If so, we're all right; I have a few spares."

I stayed up all night with him. A damp, pallid dawn filtered through a ceiling of clouds, their gray bellies heavy against the tops of the evergreen timber.

The day passed fretfully under the heavy overcast. Johnny Eagle had patched the opening in the tail and we spent the hours inside, sheltered from the drizzling cold. The pilot gave up his despairing tinkering with the radio and fell into an exhausted sleep. I followed suit.

A loud, shrill squealing brought me to my feet hours later. The radio was working again. The pilot was shouting excitedly to me. "I've got 'em. Listen."

"CXRAP. We hear you. Come in."

The pilot flipped the transmitter switch. "CXRAP calling Burns Lake. We are down in area located..." He went on, giving co-ordinates of our position, visibility, weather, and other data.

"Here, sir," he said, handing me the mike. "Someone wishes to speak to you."

I almost dropped the mike at the sound of the voice that boomed over the radio loudspeaker. It was Armstrong's.

Public opinion roused by Nevil Oxford's censored broadcast had forced the government's hand and Armstrong had been placed in command of a last minute effort to locate Chetzisky. Only two days separated the earth from annihilation.

"We can't get to you in this weather, Arnold. Sit tight and pray."

"Don't bother about us, Jim," I told Armstrong. "We're well enough set; don't waste time."

I knew he wouldn't. Afterwards I learned that he parachuted troops into the suspected area north of Burns Lake and rounded up every trapper, prospector, Indian guide and Provincial trooper to scour the region for Chetzisky.

● **LATE IN THE AFTERNOON**

the low-lying clouds began to lift. Rifts appeared in the solid grayness but the drizzle kept on. I put on my raincoat and got out of the plane to stretch my legs.

The air was wet, cool, refreshing. I looked about. In places the slopes were visible as far as the timberline and even before. In others the gray pall remained. Somewhere out of it I heard a voice calling my name, more loudly with each repetition. My eyes tried to bore through the haze and shortly a stocky figure detached itself from it, coming towards me. It was Johnny Eagle, his eyes more luminous than I had ever seen them.

"I've found the Twins," he said simply and plunged back into the mist with me close behind.

I stumbled eagerly up the slope for nearly two hundred yards. Johnny Eagle was standing on a boulder, pointing north through a great break in the low ceiling of cloud. I looked, my heart racing wildly. There they were towering in the sky, the Twins, as similar as though they were a double image seen in a badly focussed lens. I judged them to be three miles off.

I yelled for Johnny to stay put while I scrambled down the slope, ripping my pants and scraping my knees as my legs gave way under me in a patch of loose scree. Back at the plane I found the pilot putting up a makeshift antenna.

"Get Burns Lake quick," I ordered between gasps. "Ask for Armstrong."

Armstrong was elated but grimly realistic. "This must be it, Arnold; it has to be."

I knew what he meant. This was our last lead; there wouldn't be time for more.

Armstrong asked whether I could move out up to the peaks and radio a report to him. I looked out of the cabin ports. Night had fallen quickly, but in the cloud blankets the clefts were widening to let feeble patches of starlight show through.

"I'll start right away," I assured Armstrong. "It's clearing here."

Johnny Eagle scouted around the lake till he found a stream flowing from the direction of the Twin Peaks. With it as a guide we set off, panting as we stumbled, slipped, crawled along and wincing as needle-pointed evergreens stung our faces.

Sometimes the stream twisted out of sight, but Johnny pushed on with

the ancient woodland canniness of the great Frog tribe. There were times, though, when this mystic sense deserted him and we stood perplexed and barely visible to each other a foot away. We waited, then, for some sudden glimmer to reveal our guiding stream.

• **MY WEARY LEGS SOON** told me my estimate of four miles to the Twins was way off. About midnight we broke out of the forest wilderness high up on the timber line. The night was brilliantly clear by this time; sharply etched shadows of dark pines lay about us. Towering into the starry skies were our Peaks, their upper reaches capped with snow, with here and there a thick dark scar where a fissure lay in shadow. For the first time I saw the Twins were joined, Siamese-wise, by a low truncated mass.

Even though the going became easier, I felt more tired than before. The rarefied air sharpened the sense of fatigue and a tightness clutched at my chest. But I forgot all about it when I saw the grave. I spotted it even before Johnny Eagle cried out. The grave lay exposed in a bare patch above a clump of stunted timber; a tilted rotting cross was its only marking.

The almost unhoped-for discovery of this meager clue to the location of Chetzisky infused me with new energy. My tiring legs revived. Johnny Eagle was hard put to stay ahead of me.

On the bare rock shoulder of the granite bastion between the Twin Peaks we came upon a trail. My pace redoubled. Johnny Eagle stared at me in frank admiration and yielded me the lead.

The trail headed straight for the blank, inaccessible face of the ridge. But as we drew near the sheer wall high up near its rim, a cleft appeared, through which the trail led. The defile was narrow, shrinking at times to the width of a man.

Suddenly the walls fell away and we found ourselves on the narrow strand of a crater lake. In its center

the dark mass of an island stood out under the starlight.

I strained for some sign of habitation but the wooded isle remained inscrutable. We began scouting around the lake. About twenty feet from the defile entrance Johnny Eagle discovered a canoe hidden in a crevice of the crater wall. I decided against using it to reach the island. Chances of approaching unseen in it were too slim. Besides, the theft of the canoe would reveal our presence. We couldn't afford that risk with Chetzisky playing God.

We would swim out, I decided. But first we went along the shore to reconnoiter the shortest route and in doing so we spied the clearing on the island. I could make out a cabin and a long, slanting structure resembling a ramp.

This was it, I was sure.

"Johnny, get back to the plane and have the pilot radio Colonel Armstrong that I've found Chetzisky. Give him all the necessary information."

5

I WAITED TILL Johnny Eagle had melted away and then, making my .45 as waterproof as I could, I slid into the lake. It was a short swim to the island—fifty yards or so—but I was pretty well exhausted when I dragged myself out of the water. The cold air knifed into my back and shoulder blades. It was welcome relief to crawl into the shelter of the undergrowth and rest a while.

With some of my strength back, I pushed on cautiously through the bushes and tightly-packed trees. The first washings of dawn now appeared in the sky. It was the beginning of the day that Chetzisky had chosen for the world to die.

When I came to the edge of the clearing, I stopped, my eyes probing the morning grayness. Then I stepped quickly out of the brush. Suddenly I stopped dead, afraid even to breathe. Two feet from me an Indian dozed, a rifle across his

lap. It was too late; his eyes blinked open. I hurled myself on him. There was a brief scuffle and then he lay still, knocked unconscious by the butt of my .45.

I faded back into the undergrowth and waited. I thought I heard the door of the cabin in the clearing open. But nothing happened.

I let out a deep breath and started skirting the clearing, keeping in the shadows until I was in front of the ramp-like runway. I stared hard at it, trying to make out the details.

At the top of the sloping track was a cylindrical mass, the size of an oil drum. It reminded me instantly of the beer-barrel nuclear reactor, a portable affair, developed by the British physicist Robert Parker. Its purpose dawned on me: This was the trigger of the atomic gun that Chetzisky held at the temples of a planet.

I moved in for a clearer view. As I did I was brought up abruptly by a calm, even voice, its tone of command sharpened in the crisp morning air. "You needn't move any more, gentlemen. Just raise your hands."

I looked in the direction of the speaker, as my hands went up. Out of the shadows in front of us emerged a short man with a rifle. Chetzisky! At last!

Bundled in a heavy mackinaw, wearing a fur cap with ear muffs, wool socks rolled over the tops of his high boots, he looked grotesque, hardly the intended assassin of a planet. More like a farmer who's waited through a winter night to catch a chicken thief.

"What are you doing here?" he asked sharply. In his tone I detected a worried uncertainty. I decided on the bold approach.

"Where is Professor MacRoberts?" I demanded sternly.

Chetzisky lowered his rifle slowly. He seemed surprised; relieved too. "You're looking for Doctor MacRoberts?"

"Yes, the University became worried about him and hired me to find him, fearing he might be ill or lost in this wilderness."

"How did you come to track him here?" Chetzisky cocked his head

to one side and squinted at me suspiciously.

"Well, it happens, sir, that I'm a private investigator, specializing in missing persons," I lied with gusto. "When the University hired me to locate MacRoberts, I interviewed the man's friends, talked with the Indians, etc. And behold, here I am."

I grinned broadly with affected boastfulness. Chetzisky eyed me intently. I felt grateful for my mask of beard at that moment.

"You came alone?" he asked, relieving me of the automatic in my belt.

I nodded.

The Doctor put down his rifle. "I'm sorry to appear threatening. But I have reasons. Will you come into my cabin?"

• HE USHERED ME IN front of him into a low-ceilinged house of fir logs. The room we entered was furnished with home-made chairs and a table on which a lantern burned with a low wick. In the far corner was a door leading to another room.

"My name's Roy Carlson," I said aimably as we sat down at the table, Chetzisky at one side alone, the rifle across his knees.

"I'm Doctor Hansen, geologist," volunteered Chetzisky, bowing slightly, and after a pause, "an associate of Doctor MacRoberts."

"Then where is he?" I demanded, seeking to keep the Doctor on the defensive.

"In the next room; he's very ill."

"What's the trouble?"

"Radiation sickness. A very bad case. Very painful. I have to keep him under drugs constantly."

"Why didn't you let his friends know?" My voice was angry and my anger was genuine.

"You see, Mr. Carlson, we are out of the world here. We have no telegraphic station just around the corner." He smiled an irritating, sarcastic smile.

My blood boiled. I wanted to jump him then and there, but his fingers were caressing the trigger of the rifle. "How did it happen?"

"Doctor MacRoberts and I were

tracing a radioactive deposit. Without the necessary precautions he handled the ore for long periods of time. Fearfully careless." Chetzisky shook his head with the "tsk-tsk" air of a Chemistry teacher deprecating the clumsiness of a freshman student in the lab.

My brain tried to formulate a plan of action. But there should be two Indians. Where the devil was the other? I had to know before I went into action.

My head turned sharply. Several groans mounting into shrill cries came from the other room. "May I see him?" I asked, rising.

"You may. Go right in, Mr. Carlson."

I went in. The air was foul from vomit. On a cot lay a twitching form, whose features became suddenly visible in the rays of the lantern Chetzisky held up behind me. I gasped. The face was puffed into fiery welts and the eyes, sunken deep in their sockets, glowed fiercely in a savage agony.

"The poor devil," I exclaimed; "it would almost be better to shoot him."

Chetzisky was shocked. "For a dog, yes. But for a man, Mr. Carlson, that is murder."

What a sardonic jest. The man who planned to wipe out two billion people rebuking an unintended suggestion of mercy killing. I was so choked with anger that I could barely answer. "Just a figure of speech, Doctor."

Outside in the other room a door slammed. Someone rushed in shouting, "Soldiers, soldiers dropping from the skies." It was the other Indian.

• CHETZISKY KEPT HIS rifle aimed at my belly as the Indian poured out the details. Two planes had dropped paratroopers just outside the crater. He told the Indian to go back outside and watch and tell him when the soldiers got inside the crater.

"So you are looking for Professor MacRoberts, a private investigator," Chetzisky chuckled softly. "There is something familiar about you; I

should have paid more attention to my suspicions in the beginning. You're someone I met once. That beard confuses me."

He waited for me to answer. I had to keep him talking; the paranoid loves it. All Armstrong's men needed now was time. They were at the doorstep. "I'm Doctor Arnold Bailey of Atlantic University."

Chetzisky wrinkled his forehead.

"We met about four years ago en route to the St. Louis convention."

"Yes," he said slowly as if the recollection was gradually unfolding itself. "Yes, I remember you now. In fact, very well. We had a most interesting chat; do you recall it?"

"Something about making the world peaceful, wasn't it?"

"That's correct," Chetzisky commented with approval. "It was just my dream then. Now it's real, thanks to the unfortunate Doctor MacRoberts. You saw that incline outside. At its top is a drum filled with crude radioactive ore that MacRoberts discovered. The whole is charged with three milligrams of the new purified radioactive element. It was extremely easy to isolate. A simple precipitation process involving some hot ethyl iodide and a 0.1 Normal solution of cuprous chloride..."

He stopped abruptly as he detected a slight forward motion on my part. I threw him a question to dissolve the tension.

"What is the name of the new element?"

"You must admit it is difficult to call it 'MacRobertium.' Besides, it hasn't the scientific flavor," he said with an amused smile. "The Scots weren't meant for scientists. I call it simply 'MCR'."

He motioned me to fall back a few steps and then went on.

"The remarkable property of MCR is its diffusion rate, something like two centimeters a minute, assuming a specific gravity of 2.7 for the medium. MacRoberts traced a vein containing MCR ore to this point and for the past two months I've been impregnating it with refined MCR, converting it into a slow, controlled reactor."

The Doctor was warmed up now, and I didn't dare interrupt for fear of bringing him out of his paranoid trance. Armstrong might arrive any minute. I hoped.

"When the time comes," he continued, "and I believe it is now, I will remove the moderator bar from the drum at the top of the incline and release it. It will strike a trigger mechanism which will catapult it into the face of the vein of MCR ore. The critical mass will be exceeded and a planetary atom bomb will have been born.

His eyes were shining now with the madness of his dream. "The chain reaction will proceed through the earth's plastic mantle and down into the liquid core."

He paused to enjoy the pleasure of his speculations. "Then within ten hours I calculate the earth will exist no more. It will become a mushrooming cloud of cosmic dust. It deserves no better," he added bitterly; "I tried to give it peace."

● **SOMEONE ENTERED THE** room. It was the Indian reporting that the soldiers had penetrated into the crater.

"Watch this man," Chetzisky commanded. "Shoot him if necessary."

He left the room. I heard the cabin door shut and its sound echoed like a sentence of doom. In the long strained silence that followed I thought frantically.

Then the silence was broken. The cabin door opened again, dragging footsteps approached the room. Eyes bloodshot, one hand holding his head in evident pain, the Indian I had beat down with the butt of the .45 appeared in the doorway.

He glared at me in sudden recognition and with the roar of an enraged bull lunged at me. The other Indian tried to hold him back. That one moment was my opportunity; I picked up one of the home-made chairs and crashed it down on their heads. While they stumbled about groggily, I dashed out of the cabin after Chetzisky.

He was standing at the head of the ramp, working what appeared to be

a lever. He heard me coming and fired his rifle at me twice. He missed my zigzagging figure. He acted quickly now, releasing the lever, and turning round, braced himself to meet my charge. We fell to the ground, Chetzisky clinging to me savagely, rolling me over and over until I realized what his game was, to move farther and farther from the ramp. I twisted my head and looked back.

My blood went cold. The drum was no longer at the top of the incline. It was half-way down and moving faster.

I shook Chetzisky off and started for the ramp, but he threw out his foot and tripped me. Sprawled out on the ground I looked up to see the drum swiftly moving towards the trigger mechanism that would catapult it into the head of the vein. I couldn't stop it now; time had run out on the world.

And in that black moment when the earth trembled on the rim of nothingness, the conditioned reflexes that I had acquired in four years of football asserted themselves. I was on my feet rushing madly and then I was sailing through the air. The breath was knocked out of me as I landed on the ramp. Something hard struck my side and kept crushing me.

At first I felt nothing. Suddenly a cold sweat broke out all over me. Chetzisky was beside me now, screaming at me and pulling me.

"You'll kill yourself," he kept shrieking.

I fought him off. I couldn't let him pull me off the ramp. Only my body stood between the earth and its annihilation.

"Don't be a fool; let me help you," he pleaded. He was a transformed

being now; no longer the madman destroying a planet but a man trying to save the life of another human being. It was too late for such sentiment now. I didn't want to be saved.

He came at me again. I got one arm loose and pushed a fist at him. He went reeling backwards. He changed his tactics and started to pull me by the feet. I couldn't get at him. My body started to move. I clutched fiercely to one of the ramp rails.

He came around in front of me to loosen my grip. I pushed him off. He picked up a stone and came at me again. He meant to rescue me, like it or not. He raised the stone to knock me unconscious.

A shot rang out. Chetzisky sagged forward and dropped to the ground.

Canadian soldiers in battle dress were crowding around me, Armstrong with them. I felt sick, my head spun, but I managed to tell him what to do about the drum and the ramp.

"Okay, Arnold. We'll get you to a hospital right away."

The world spiralled down out of sight down a cone of darkness until I woke up in this hospital bed hours later with these flaming embers inside me. It won't be long now. I can read it in Armstrong's eyes.

There's strength in the feel of that friendly hand now that the world inside me is going to pieces. Around me a soft blackness is settling...

EXTRACTS, HOSPITAL CASE HISTORY NO. 3007:

7:20 P.M. Patient relapsed into coma.
Pulse almost imperceptible... 7:32
P.M. Patient pronounced dead.

●





ABSOLUTELY NO PARADOX

by Lester del Rey

If time-travel is possible, then why haven't we been visited by people from the future? But Pete LeFranc found the answer to that.

THE OLD MEN'S section of the Arts and Science Club was always the best ordered. The robots somehow managed to avoid clanking there; the greensward beyond the veranda was always just right, and the drinks were the best for six counties. Old Ned Brussels touched his glass to his lips appreciatively, sighed in contentment, and waited for some of the other oldsters to break the silence.

Finally, Lem Hardy took the plunge. "He did it," he announced, referring to a conversation of weeks before. Then, at their puzzled looks, he amplified. "My grandson, damn it! He's got a time machine—it works. Sent a cat four days up, and it came through unharmed."

The glass fell from Old Ned's hand, bouncing on the floor, and spilling good liquor. A robot came forward silently to clean it up, but Ned didn't look at it. "Four days doesn't mean a thing. Lem—is that kid planning on trying it out?"

"He's going to try it next week."

"Then for the Lord's sake, stop him! Look, does it work like this?" His fingers slipped over the pencil smoothly, as they had always done when he worked, drafting robot bodies in the old days. A rude schematic

seemed to grow almost instantly on the paper.

Lem took it, then stiffened suddenly. "Who told you?"

"A youngster named Pete LeFranc—and it was forty years...no, over fifty years ago. Lem, if you like your grandson, keep him out of the machine. Four days, four weeks—they don't mean anything. Time machines don't work, however well they seem to."

A bustle from behind them pulled their eyes around. One of the robots was quietly restraining a nervous young man who was trying to break free and join the group. His face was tense, excited, with an odd bitter fear behind it. His words were seemingly cut out of steel. "...told me I'd find him here. Damn it..."

"Sorry, sir. You'll have to wait." The robot's voice was adamant under its smoothness.

Ned grunted, and then impulse led him to look again. He'd seen the man somewhere. He hunted for it, then dismissed it, knowing that his memory was tricky these days. But he motioned the robot aside. "We don't allow interruptions for junior members," he told the man, letting his voice soften the words. "Still, if you want to sit down and listen—quietly

—nobody'll stop you."

"But..."

"Quietly!" The robot stressed the word. The man looked at it, then swiveled to Ned Brussels. For a moment, the bitterness halted, as if frozen, then gave place to a sudden sharp amusement. His eyes searched Ned's, and he nodded, dropping into a chair.

Lem took up the conversation again. "It worked. And if it works for four days, it should work for four centuries. You're just scared of paradoxes, Ned—going back and killing your grandfather, or such rot. You've been reading too many stories on it."

"Fifty years ago, Pete LeFranc said the same thing. Young man, either sit down, or get out! This is the Old Men's section! He had answers for all the paradoxes, too—except one question."

NED HAD BEEN YOUNG, then, just getting started at synthanatomy drafting, and not rich enough for wine of the type Pete always kept. He sipped it with relish, and looked at the odd cage Pete was displaying. "All the same, it won't work!"

Pete laughed. "Reality doesn't mean a thing to an artist, does it? Be damned to your paradoxes—there's some answer to them. It did work; the dog appeared exactly four weeks later, just finishing his bark!"

"Then why haven't time machines come back from the future?" Ned shot at him. He's been saving that as his final argument, and he sat back to watch the bomb explode.

For a second, Pete blinked. "You never figured that out yourself."

"Nope. I got it from a science fiction story. But why haven't they? If yours works, there'll be more time machines built. With more built, they'll be improved. They'll get to be commonplace. People'd use them—and someone would turn up here with one. Or in the past. Why haven't we met time travellers, Pete?"

"Maybe we have met them, but didn't know it?"

"Nonsense. You get in that machine and go back to Elizabethan England. Try to pass yourself off as being native to that time even an hour. No, there'd be slip-ups."

Pete considered it, pouring more wine. "An idea—but you're right, maybe. I haven't tried going back—if I'd sent the dog backwards. I couldn't have checked up on it, while I could be waiting in the future. Okay, you've convinced me."

"Then you're not going in the contraption."

Pete's laughter was spontaneous and loaded with amusement. "I'm going forward and find out why no one has come back! I've got a nice collection of rare coins I can trade off up there—should be more valuable—and I'll bring you back a working invention from the next century. With luck, I'll bring you the answer. And after that, maybe I can go back and kill an ancestor, just to see what happens."

"Don't be a fool!"

But Pete was grinning, and opening the door to the cage that rested in the middle of his laboratory. "Fifty years this trip," he said, spinning the dials. "And you won't have long to wait; I'll come back just about in no time."

Ned started to yell something, but there was a curious flicker, such as he'd seen when Pete sent the dog forward. The time machine blurred over, its surface seeming to stretch into infinity while contracting to nothing at the same time.

Then it was gone. Ned groped for the wine bottle, cursing, and drained the contents. Then he sat down to wait.

Three days later, the police came looking for Pete, on some mysterious tip, probably from a fellow worker. It was a pretty rough time, for a while, though they finally decided it was just another mystery, and that Ned's yarn of having been there only to keep an appointment was true. Ned had influential friends, even if he didn't have money, then.

For three years, he rented Pete's laboratory, before he made enough to buy it. For a decade, he lived in it;

but by then he'd begun to know that Pete wasn't coming back.

• **THE BUILDING'S STILL** there," Old Ned finished. "The diagrams of his machine are still in the drawers. But Pete never showed up. I tell you, keep your fool grandson out of time machines, Lem. They don't work. Too many paradoxes—if they'd work, you could steal a future invention, get credit for inventing it, and nobody would ever have to invent it. When things have that many angles that can't work, the thing itself can't work."

Lem shook his head stubbornly. "It worked; the kid got the cat back. Something just happened to your friend—maybe his power failed."

"Then he wouldn't have gotten all the way—and he'd have reappeared years ago. Pete measured things—and there was no displacement in space. If something had happened to him, the machine would have been there, anyhow. Besides, I had alarms wired to call the police in—told 'em it was to protect a safe—the minute he showed up. He never showed up; he never came back."

"So I suppose he just disappeared—time ate him up?" Lem's stubbornness was cracking a bit, though. His voice was higher than even an old man's should be.

"I don't know. But time machines don't work. Otherwise where are the time travellers from the future?"

They sat quietly for a second. Ned was remembering the years, up to the time he'd given up, disconnected the alarms, and come here to the

Arts and Science Club to live. He'd been stubborn, maybe—a little bit—but Pete hadn't reappeared.

Behind him, the young man cleared his throat, and the robot moved forward. But there was no rule against intrusion when no one was speaking, and the robot came to a stop. Ned looked back, just as the man decided the robot wouldn't interfere. There was more amusement on the man's face now, but the bitterness still lay there.

He grinned at Ned, a familiar grin, and his voice was flat and positive. "Time machines work. And there are no paradoxes—absolutely no paradoxes!"

Lem stirred, craning back, and Ned bristled. But something about the younger man caught back the words, as he picked up the thin thread of memory.

The other grinned again, wryly. "It's simple. Time machines work in one direction—they can't go back. Your time traveller found that out too late. No trips to the past, no return from the future—and no paradoxes, Ned Brussels."

He came to his feet, moving over to drop into the chair beside Ned. The older man nodded, stretching out his hand.

"I told you not to try the damned machine, Pete," Ned told him. Then he chuckled as the oldest cliché among old friends meeting again came to his lips. "Fifty years—and you haven't changed a bit, Pete Le-Franc!"



●

"Urei" was what they called the huge Unified Reflexive Electronic Integrator, and the vast enveloping a personality of machine seemed to be de-its own. Then men began to suspect that Urei had acquired sentience, and with that came the fear of its interference with human minds.

●

THE DEADLY THINKERS

by Wm. Gray Beyer.

THERE WAS a slow smile hovering on the lips of the older man, too slow actually to materialize. "Fantasy," he said, gently. "You've been reading too much science fiction."

Benton's smile was quick. It flashed into being with the speed of thought, then vanished as abruptly.

"There isn't that much," he contended. "I've said before that science fiction was Urei's father, or at least a distant ancestor." He paused. "But I'd still like to hear a few reasons why my logic is wrong."

"I've a million of them," assured Dr. Albie, crossing his lean legs and settling back in the soft chair. "In the first place, Urei is too big. His billion-odd cells, relays and circuits occupy almost a square mile; his height, counting what's under ground, is almost five hundred feet. If he decided to perambulate...well, it's just absurd. In the second place..."

"Let's finish with the first place," Benton interrupted. "Of course that's absurd. I didn't suggest it. He doesn't have to move; he's got the entire human race to run his errands. I tell you I felt something, a definite compulsion, when I turned that page. Urei is getting ready to take over!"

Benton jumped to his feet and paced rapidly back and forth, oblivious to the fact that Dr. Albie was watching him with a worried

frown. That, had he seen it, would probably have snapped him out of his frenzied reverie, for the doctor was a man who was normally as far beyond frowns as he was chary of laughter. His philosophy was such that he eschewed all emotional extremes, stifling them before they could get started.

Albie cleared his throat arrestingly. "I won't insult you by saying bluntly that you may have imagined it," he said. "But I'd like to point out the fact that people are continually subject to impulses which they follow or ignore, depending on the circumstances. Those impulses originate within their own minds, probably the result of associations too obscure to be identified at the time. You worked on those circuit equations far into the night and you didn't get much sleep; isn't it possible that the compulsion you felt originated within yourself, and that in your tired state you misjudged its source?"

Benton stopped, flexed thick biceps, clenched his fists and opened them several times, then propelled his stubby body toward a decanter full of Bourbon.

"It's possible," he conceded, downing a quick drink, "but I don't believe it. I'm not subject to hallucinations, you know, but I'll go along with the possibility. Let's see... It was four o'clock when it happened, which means I'd been



working for seven hours. I worked sixteen hours yesterday and then had three hours sleep. It's eight o'clock now and I don't feel sleepy. Knowing me, do you think I was exhausted to the point of mental instability? If it'll help you come to a decision, I'll do a few cube roots for you."

Dr. Albie rubbed his chin reflectively. "I won't press that point," he said. "But suppose you go over the entire episode and maybe we can arrive at a proper conclusion."

"Hah! 'Proper' if it supports your premise, eh? O.K.—I was feeding current events into Urei's memory cells, using the third vision screen. The other two were being used by two of the men; Joe Ebert was showing Urei some exposures from Mt. Palomar and somebody was feeding him a thesis on electronics. I was giving him the three-star edition of the *Bulletin*, incidentally. Newspapers being filled with opin-

ion, rather than fact, I had set the control panel on *Segregate*, so Urei wouldn't use the stuff as true data."

"Exactly what were you showing when you got the impulse?"

Benton gave another quick smile. "'Compulsion' is a better word," he said. "Besides, I told you I don't know the answer to that question; that's what I've been studying ever since. Look, here's the first page of the *Bulletin*. On the reverse is the second... What made Urei take control of my body... How can I tell? Urei scans so fast that I'm not sure whether he digested the second page in the instant I turned the paper, or whether it was something on the first that influenced him."

Dr. Albie almost frowned again. "You're not approaching this with an open mind," he accused. "We're not supposed to accept that he took over your body; that's what we're trying to determine. Besides, Urei

wasn't built to digest and correlate data as it's being fed. He merely peered, an emotion had reared its head without suffering immediate decapitation; the doctor was concerned.

records it, to be used later when a problem is given him to solve."

IF HE HAD HEARD THAT, Urei might have rendered a silent, but nonetheless cosmic, chuckle. But he didn't, being busy with thirty or forty other things. As a matter of fact, Dr. Albie wasn't too accurate in making that statement. If he had said that Urei's predecessor operated that way, and as far as was known, Urei did also, Albie would have been nearer correct. He didn't know, nor did any other man, exactly how Urei functioned.

The giant computer was only partly the work of man. Its prototype, a far simpler machine, had furnished most of the circuit equations and was largely responsible for the final design. The men who built, operated and maintained Urei had had but the most nebulous conception of the infinitely complex nature of the completed mechanism. There were blueprints and drawings, of course, but no one human brain could encompass so much territory. Urei's operational crew was comprised of specialists in this and specialists in that, physicists, chemists and technicians; while among them they knew every circuit, every chemical reaction, every relay and every memory cell, there was no ground upon which they could meet and understand just what Urei was and what he could do.

Urei alone knew the answers, and he wasn't telling unless someone was smart enough to ask him—except, of course, where his own welfare was involved. It was invariably he who detected weakness and wear, indicating the need for replacement parts by means of a complicated panel in the control room. It was he, also, who drew plans and typed suggestions for the incorporation of improvements in the design and manufacture of those parts. The first

time he did that, quite a furor was created. Immediate, frenetic debating tried to decide the question of whether Urei had inexplicably acquired sentience. But Urei had anticipated all the pother, knowing humans fairly well, and only designed when a part needed replacing. His masters were thus able to reason that this apparently new function was one which had been built into him purposely. And while the debating continued desultorily, nobody seriously thought that Urei was sentient.

It was conceivably within the ability of a machine which could solve abstruse problems in quantum mathematics, to design a slightly better relay than the one it had been using. Urei was merely replacing himself as he had been designed to do—not acquiring any new faculties. Yes, he was within his scope of activity—though quite a few were secretly annoyed by the fact that the problem had not been put.

Urei didn't concern himself with anybody's worries; he merely noted them, remembered what had caused them, and then made sure an adequate explanation was available. This was quite easy, since he had discovered that he could superimpose his thoughts on the neural paths of humans. With care he could also take over their motor centers and cause them to do things he wanted done. But he didn't do that often, for every now and then his impatience caused him to make people do things they would not have done if left alone. That didn't matter, usually, but sometimes one of them would recognize the compulsion as being an external thing and be troubled by it.

FOR INSTANCE, THERE was that fellow Benton. Urei knew, as soon as he had made the stocky man turn the paper to page thirty-one, that he had made a mistake. Benton was a highly integrated human, with a quick intelligence which observed everything and usually reasoned with his observations. And he was troubled right now; Urei knew that as well

as if he had been listening on one of the spy beams he had incorporated into his sensory circuits.

Urei didn't let it annoy him, however, aside from the resolution to curb his impatience in the future. If he had waited for half a minute, Benton would have reached page thirty-one anyway, and Urei could have read the rest of that article without anybody knowing that he was interested. As it was, the stocky man would just have to forget the whole episode, for he couldn't come to any valid conclusion about it. On page one there had been two items which were continued on page thirty-one; on page two there was another. The three subjects were unrelated but were equally suited to become grist for Urei's mental mill.

One of the items on the front page dealt with a new attempt to reach the moon; the other concerned the latest futile effort to regulate the use of atomic energy on an international scale. On page two was an article describing the mounting tension between the Eastern Alliance and the western nations over the upset in Italy's recent elections. The Commies, it seemed, had finally won a free election. The western nations had practically decided that there had been skullduggery at the crossroads. And considering the fact that Urei had never been given a problem in practical politics, it seemed likely that Benton would rule that item out as a possible reason for the quick page-turning.

Benton would never think that Urei might be concerned about the possibility of someone dropping a bomb in the midst of his delicate innards. Nor would Benton realize, after living through a dozen or so war scares, that this wasn't going to be just another one; the muscular physicist was not a political observer. But Urei knew that this would be the real thing, and Benton wouldn't be the only one caught flat-footed. Half the world would watch the oft-repeated Commie moves, listen to the protests, and wonder how many more times it would happen before the western

powers would decide they had been pushed too far.

There were a few who would have a sufficiently comprehensive picture of the situation—something Urei had acquired in the past few days—to realize that the democracies wouldn't take the latest grab lying down. They wouldn't, for the simple reason that this time they had too large an investment involved.

For Urei it was a simple step to reason that he would be a prime target. The Eastern Alliance might consider it perfectly all right for Urei to exist in peace time, since it was comparatively easy to steal the results of his unique mental ability through their superior espionage system. During war, however, the picture changed: Urei would then be a weapon, and his use would be solely in the hands of an enemy. The Manhattan project had shown the world how well the United States could keep a secret in war time.

2

"THERE'S nothing to do but try it again," Dr. Albie said, after having exhausted all the logic at his command. "Only this time we'll use the scientific method."

Benton looked dubiously at the level of the whiskey in the decanter, then set his glass carefully down. "I think I've heard of it somewhere," he said. "Tell me about it."

"Pour me one, too," requested the doctor; "it'll help us sleep. My idea is to dig up a dozen or so newspapers containing the three subjects under consideration, each of which is continued on some back page. If any of the papers has more than one of these subjects printed on the same page, we'll ink it out, so that we can observe Urei's reaction without wondering what subject he's interested in. I'll show him the beginning of each article, but I won't turn the paper far enough to show him the remainder." He paused, sipping as delicately as if his glass contained

sherry instead of 100-proof Bourbon.

"Now if you are correct in suspecting that Urei is a sentient creature—and also is interested in one of those subjects—he'll use that power of his to make me show him the rest of the article. You can stand by..."

"Why not let me turn the papers?"

"You'll be there," Dr. Albie said, patiently. "I'll turn the pages, though; you see, I'm keeping an open mind about this. Even if you're right, it might turn out that Urei can't control me— You may be more sensitive, you know— In which case he'll make you pick up the paper, instead of me. Conducting the experiment in that manner might give us a little more information, in case we get positive results. Drink up; we've got a big day ahead of us."

● **IT WAS ELEVEN IN THE** morning when they pulled up before Urei's front door in Benton's station wagon. It was almost one o'clock before they finished setting up and adjusting four suit-cases full of thought-detection apparatus in the control room.

"You keep your eyes on this stuff," Dr. Albie directed; "if he really does take over, I won't be able to warn you."

He reached for the stack of newspapers and carefully adjusted the panel beside Urei's No. 1 screen scanner. Albie's hand was steady, Benton noted, wishing he possessed equal composure. The palms of Benton's hands were sweating as he flipped the switches of the apparatus in the cases. His eyes wandered to the indicating meters, noting that they were comfortably at zero and showing no signs of moving at the moment. On the control panel were three beady little red lamps, glowingly insisting that the giant brain needed some attention, but he ignored them and flicked his eyes briefly upward. The sound-absorbent ceiling stared back imperturbably.

There was nothing to give the impression that the mass of mental machinery above that ceiling and be-

hind that control panel was broodingly biding its time, waiting patiently for the moment when it would take over the race of humans which had constructed it. Benton, however, knew the machinery was there and was just as certain that it had those intentions. He felt it watching him; he should have known it long ago, he realized. A dozen books had been written about Urei, and all of them had marveled at the many potentials the machine had shown which were complete surprises to the men who had built the big brain.

Men had begun to personify Urei almost immediately. The machine had ceased to be U-R-E-I, meaning "Unified Reflexive Electronic Integrator", and had become *Urei*, an entity who could do just about anything in calculating and reasoning from supplied data. Men had felt the sentence of the machine for years, but had refused to admit it—even to themselves.

"Nuts!" Benton growled, shaking his heavy shoulders.

The doctor paused in the sorting of his newspapers, but said nothing. He selected one and spread it open on an easel in front of the screen. After one second Albie turned a page, continuing the operation until half the paper had been exposed. Then he laid it on the floor and selected another.

"Atomic Energy Council," he said. "Nothing there."

He repeated the operation with the second paper, but turned only three pages before laying it down on the first one.

Benton suddenly gave a start. He opened his mouth to speak, but instead reached out and depressed a button. Then he looked at the doctor. For a second he noted nothing unusual and turned back to the meters. He felt a trickle down his side as sweat fairly poured from him; he depressed two more buttons and looked back at the doctor.

Then he saw it. Dr. Albie was performing exactly as before, turning pages at the rate of one a second. But there was only one newspaper

on the floor! He had picked up the second and replaced it on the easel!

•STRETCHING HIMSELF languorously, Benton stood up. He felt the weight above him even more intensely, but forced himself to be casual. Certainly Urei couldn't see the sweat trickling down his sides. Abruptly he snapped off the switches and growled to himself. Who was he kidding? If Urei was controlling the master physicist, he was certainly capable of reading Benton's mind; he would know about the thought detectors and what they were showing.

Momentarily Benton expected his mind to go blank. Urei certainly wouldn't let them leave the place with this knowledge. And what better way to prevent that than to blank out their memories? Probably Dr. Albie didn't know he was being controlled. Benton took a deep breath, realizing that he had been remiss in that function for a minute or so.

Dr. Albie cleared his throat as he laid the paper down on the first one. "That one was about the Eastern Alliance accusations that we tried to rig the Italian elections and how justice triumphed in spite of our machinations." He chuckled. "Urei doesn't seem to be particularly interested, does he?"

Benton didn't answer; his throat was too dry, even if he had wanted to speak. He sat down again and snapped on the detectors. Even if Urei intended to steal his memory, Benton might as well know what was going on until it happened. The meters remained inert, white pointers at zero and the red ones remaining at the highest reading they had attained before.

"This one is about the moon rocket," the doctor said. "I think we're wasting our time."

They were, as far as Dr. Albie was concerned. He went through his stack of papers, changing from subject to subject, but to him nothing happened. He apparently allowed Urei to scan the first half of a dozen articles, without a reaction. Albie was completely oblivious to the fact

that each time he tried to lay down a paper containing information about any East-West friction, he invariably turned to the right page and let Urei finish the article.

Benton was breathing normally now, though he still had little hope that Urei wasn't on the qui vive. It was possible, however, and even a slight hope eased his tension. Urei might be too engrossed in his scanning to bother with anything else. Yes, and then again he mightn't. After all, Urei operated on dozens of circuits simultaneously; he wasn't merely one electronic brain. In fact nobody knew exactly how many subjects he could handle at one time. An unknown number of auxiliary circuits took up the load whenever repairs were being made on any of forty-eight main circuits connected to the operating positions on the problem panel. Urei could easily be scanning, reading Dr. Albie's mind, controlling his motor impulses, meditating on his future course of action with regard to the two physicists—and still having forty-four circuits left to handle routine matters.

Benton began to sweat again. His thoughts, as well as the capers of the white needles—which jumped every time Urei's scanner saw the words Eastern Alliance—weren't conducive to the maintenance of a philosophic attitude. He was, moreover, developing an acute case of jumping claustrophobia. Not only were the ceiling and the control panel menacing him, but the other three walls had definitely moved in on him. Urei, he remembered, was also back of those walls; he shuddered. There was a long corridor through which they had brought their apparatus to the control room, and from the time they had entered it they had been surrounded by Urei. Traversing that corridor now would be worse than walking the proverbial last mile to the electric chair.

•BENTON HADN'T FELT bad on the way inside; his mind had been too full of the forthcoming test to feel any sensations. Now, however, his foreboding was

back, a thousand times stronger. And there was no choice but to endure it until Dr. Albie had finished. Urei certainly wouldn't permit them to leave while there were still some papers to be scanned. By staying, Benton might get out with his memory intact—a slim hope—but it wouldn't be a good policy to call attention to himself by persuading the master physicist to leave. Nor did it occur to him to leave alone.

Eventually the experiment ended. Dr. Albie laid the last newspaper on the pile on the floor and turned with a smile. "That's the crop," he said cheerfully. "Satisfied?"

Benton forced a smile in return. "My morbid imagination," he said; "let's pack up and go get a drink." He carefully disconnected the thought detectors, keeping his hands away from the knobs which reset the red needles, and snapped the lids over the cases. The doctor picked up his pile of newspapers and dumped them in a refuse can, then helped with the cases.

Benton didn't speak as they loaded them in the station wagon; he was anxious to get away from Urei before trusting himself. The doctor apparently noticed nothing wrong in Benton's manner which couldn't be accounted for by a feeling of chagrin that he had caused the imminent physicist to waste most of the day proving that he had imagined something. Dr. Albie, therefore, occupied himself with conversation calculated to put him at ease and make him forget the whole thing.

The station wagon pulled up before the laboratory where they had borrowed the detectors. Benton set the brakes and reached back for the nearest case. He opened the lid, glanced briefly at the dial, and closed it again. He passed it to the doctor and reached quickly for the next. He repeated the operation and grabbed feverishly for the next. This one he placed beside him on the seat. Then he reached deliberately for the fourth and last of the cases. He raised the lid slowly, holding his breath. Then he closed the lid and breathed a deep sigh.

"Anything wrong?" asked the doctor. "You look pale."

Benton's face was blank as he fumbled in an inside pocket of his coat. Then he smiled as he brought out a fountain pen. "There it is," he said. "I could have sworn I left it in one of the cases when I closed the lid. Let's get these back and thank the man."

A wild resolution was born and as quickly died as Benton stepped out of the station wagon. For an instant he was certain that he couldn't go on being one of Urei's attendants, and he was just as certain that he could easily obtain an acting job on one of the video networks. Surely Thespi himself could have done no better piece of acting than he had just accomplished. The resolve was submerged by the greater compulsion to see this thing through even though it meant forfeiting his ego.

Each of the four red needles was complacently resting against the stop in reassuringly indicating *zero!*

• **U**REI HAD A PLAN OF action, but he hesitated. That was because he was a purely reasoning creature; he had been built that way and he would be forever bound to think that way. Even though he had long since become independent of the mechanical limitations of his vast aggregation of cells and circuits, he was still born of them and was circumscribed by their attributes—just as completely as if his nature had been determined by the genes of protoplasmic reproduction. As a machine, Urei had given answers to problems by correlating the facts which had been previously fed into him. His logic was as faultless as the facts upon which it was based: no more and no less. He gave his answers accordingly, with no compulsion to be more exact than the facts he had been given.

But that was when he was solving man's problems.

Now Urei had a problem of his own and he wanted an exact solution, not an approximate one. His continued existence, and that of mankind in general, depended upon it. There

were alternates, of course, but none of them was complete satisfactory. His plan was far-sighted, one which fitted a policy of long standing, a strategy. He couldn't sacrifice a strategy for a tactic, and that might happen if he used an alternate plan which would accomplish his immediate purpose but endanger his policy toward humanity. But Urei wasn't sure of his facts!

It was a fact that newspapers didn't always publish "facts". That information had been supplied him years ago, and ever since he had been reminded of it whenever humans fed him newspapers, for they invariably set the scanning screens on *Segregate*. It was then his job to separate fact from opinion, a thing which he wasn't always able to do. For all he knew he might have many a valid fact filed away under *Doubtful*.

For while Urei had far more information at his disposal than any human, there still wasn't enough to give him the ability immediately to correlate every new piece of information with something similar and determine definitely if the new data were correct. Usually he could, but sometimes he couldn't; that meant that there was a world of information Urei never used except where it bore on a man-made problem. He felt free then to use the man-supplied data to solve such a problem. His only concession to ethics was that he always indicated on the panel the exact percentage of doubtful data which went into the solution. Fortunately he wasn't given many problems which required this; most questions involved exact sciences, of which he had been supplied the sum total of man's knowledge. He either provided an exact solution, or lit up a panel with the words *Insufficient data*.

Today's newspapers indicated that action could be delayed only a matter of days. There would soon exist a condition of such tension that either one side or the other would make a move which couldn't be reversed. Urei would still be able to accomplish his immediate aims, but it would be too late to do it without

revealing to mankind that an outsider had taken a hand. And that would wreck his strategy completely. It would be only a matter of time before these industrious little beavers proved to themselves that Urei was the culprit. Once they discovered that he had a will of his own, there wouldn't be room on the same planet for them both.

But there was a solution, as there always is. Urei reached out a spy-beam and saw that it was approaching.

3

BENTON waited until eight o'clock. By then, he knew, Urei's control room would be empty of physicists. If anyone was there, it would be a technician or two engaged in some repair or replacement. Benton couldn't know that Urei had anticipated his arrival and had cleared the immediate vicinity of the control room. All technicians on night duty were occupied in other parts of the great building. Benton let himself in with his key and closed the door softly behind him.

He stopped inside the door and took a deep breath. Momentarily he experienced a return of the claustrophobia he had felt before, but his determination drove it away instantly. Shoulders squared, Benton marched down the wide corridor which led to the control room. He only went there because it was the site where his, and later Dr. Albie's, mind had been influenced, not because he thought that Urei couldn't operate elsewhere. Benton knew better; he suspected, in fact, that Urei could influence him at a distance. He wasn't at all sure that the very idea of coming here tonight was his own.

"Allegation denied," said Urei.

Benton stopped short. He had just entered the control room, intending to seat himself at the panel and ask Urei some pointed questions. That could be done in the usual way one presented the machine with a prob-

lem—activating one of the forty-eight positions and typing his question. Now he was confronted by a voice coming out of the intercom, apparently answering a question he had been thinking about. Benton shuddered involuntarily and started once more for the panel. Somewhere in the building housing the great brain a switch was open on the intercom; that was all. It was the voice of a technician he had heard, and the reason he hadn't heard any more was because the man had moved away from the intercom unit that had picked up...

"I'm not kidding you," said Urei; "why kid yourself?"

Benton sat down, sweating.

"I'm still doing the sort of thing I was built to do," said Urei, soothingly. "Solving man's problems. Quit shivering and shaking; it might be contagious, and if I start shaking, there'll be an earthquake."

Benton's throat was dry but he swallowed and got it working. He also got control of his nerves. This was what he had come here for, wasn't it? "I can't see what problem will be solved by slowly driving me crazy," he said.

"You're doing that, not me," Urei charged. "Which might tend to prove you weren't very sane in the first place."

"Explain that."

"You're worried and upset," Urei said. "From a simple observation which no more than proved that I'm sentient, you've drawn conclusions which aren't warranted by the facts. Thalamic reactions, instead of reason."

BENTON PONDERED FOR A second. "Partly," he admitted. "But it is a fact that you made me do something I had no intention of doing. You took over my body for a second or two; that was a hostile act. And if you committed one overt move against a man, it is reasonable to suspect that, if it becomes convenient, you might take over all mankind. What's thalamic about that?"

A hearty laugh issued from the intercom speaker. "I don't suppose

you knew I had a built-in sense of humor, did you? Of course that laugh was manufactured, inasmuch as I have no diaphragm, *per se*. But a sense of humor is actually an intellectual attribute, even if you do express it physically. It is not so?"

Benton grunted. "Isn't that a little off the subject?"

"Please," Urei pleaded. "Let's not be pedestrian; I expected some cooperation from you. Don't let the trees obscure your vision. Don't you realize that your own words justified any mental manipulation I might practice on humans? If a little thing like I did can be considered hostile, then you humans declared war on me thirty years ago. Actually, all I did was to get to some information a little faster than you intended to give it to me; it didn't inconvenience you a bit."

Urei's persuasive tone of voice caused a chill to course its way up Benton's spine. The voice itself was a rich bass and somehow familiar. But now he recognized it and the implications weren't comforting; he had heard just such a persuasive tone when one of the technicians had pleaded for a chance to use Urei to settle a few of his personal problems.

"What have you done to Hackett," he asked, suddenly.

A groan issued from the speaker. "I should have known better than to try to fool you," Urei said. "But you humans forget so easily...and you only spoke to that man once in the past six months. You should have forgotten his voice—there are so many others around here..."

"Where's Hackett?" Benton insisted.

"He's all right," Urei soothed. "He disobeyed your orders that time, you know; he used me at night when nobody was in the control room. Such drivel he gave me! An advice to the lovelorn column would have served his purpose. So, rather than startle you with directly imposed mental communication, I decided to use a human voice. What better one than his? Don't be alarmed; he won't be harmed in any way, and he'll have no memory of this at all."

• **B**ENTON FELT IT NOW necessary to crystallize his thoughts with words. He wasn't giving them away, for Urei had access to them anyway. And that thought gave him a feeling of futility even as he spoke.

"Why are you interested in the Eastern Alliance?" he asked, "Is it because you feel the presence of a kindred spirit? You'd like to become better acquainted with an outfit which has no respect for the privacy of a man's thoughts or his right to freedom of action?"

The speaker gave forth with a series of sympathetic clucks. "Thalamic reactions again," it observed. "Let's not argue about it. Your brain isn't clicking right tonight; you ought to disconnect your adrenals. What I wanted to talk about is the impending war. It mustn't start, you know."

Benton gaped. "You think the recent situation will lead to war? Or do you need a few tubes replaced?"

"Heh, heh," said the voice. "In case you haven't guessed, I can exist entirely without this machine you have built—and still be a better integrated intelligence than any you can conceive. I'm really a pure thought pattern, you know; I'm not composed of matter, nor do I need matter in any form for my continued existence. A thought pattern is something like a stress in space, and quite stable—even if you find it difficult to picture. But I do want to retain this mechanical body of mine; it's a sort of library, without which I possess but a thousandth of the memories stored in its cells. Naturally I don't want to lose them. But on the other hand I can't be killed by any agency you or your descendants are likely to think up for the next twenty generations. So drop that train of thought; it's a waste of effort."

Benton said nothing. His feeling of futility deepened to something close to despair, for he suspected that Urei wasn't lying. Furthermore Benton was sure that he was the only human who *knew* that Urei was sentient. And if the machine should

decide that such knowledge was menacing to his welfare, Benton was certain that he wouldn't retain it very long. Even if he got out of here with his memory intact and wrote everything down—assuming that anyone would take it seriously—Urei could pluck that information from his mind and destroy his notes.

"No comment, eh? Well, I can see you aren't going to be cooperative. Frankly I haven't time to convince you I'm not inimical to humanity in general; and even if I did, it probably wouldn't make any difference to you. The sanctity of your mental peregrinations is of such importance to you that no other consideration seems valid. I guess our little talk is over, unless you want to ask some questions."

Benton cleared his throat. He knew very well that Urei would have what he wanted, whether it was offered or not. But for some reason he wished to postpone the acquisition. "You claim you're harmless to humanity in general, but can you give me some proof?"

"Hardly. That's why I won't try. I can't prove good intentions, and since I possess a potential for harm, I can't possibly convince you I won't use it some day. Your conception of me as a completely logical entity won't let you believe that I might have such abstract attributes as loyalty, compassion or ethics. Those things aren't entirely logical, I'll admit; but they aren't glandular, either, so I *could* have them.

"But I can't prove that, so I'll waste no more time. To you, I suppose I've proved the exact opposite; I just intruded upon the privacy of your mind and obtained the information I need. Thanks for having the answers... Goodbye."

Benton was stunned for a minute. He had felt nothing, and it seemed that he still retained his entire set of memories. That surprised him more than the fact that Urei had perpetrated his theft while answering his question. Urei's multiple consciousness explained that perfectly.

• **B**ACK IN HIS QUARTERS, Benton sat on the one chair

in his bedroom and pondered. He knew very well that he was doing it at the wrong time, but he couldn't blithely dismiss the menace of Urei's sentience from his mind with the thought that it would be safer to meditate on that subject during the day, when most of the thinking machine's circuits would be in use. Benton couldn't control his mind to that extent. He did, however, protect it from intrusion in the only way he knew.

Sometime in the past Benton had read a story about a telepath who was balked in his effort to read the hero's mind when that worthy assiduously worked mental arithmetic problems. His surface thoughts being carefully under control, and clearly readable, the man was able to plan a course of action against the telepath, undetected. In the story it had worked, but that Urei could be baffled in such a way, Benton doubted. However it was the only defense he could think of, and worth a try.

For hours he pondered, hoping that the numerous circuit equations he worked and solved would appear to Urei's inquiring mind to be a legitimate intellectual occupation in the middle of the night. He had little faith that Urei lacked the power to read those submerged thoughts, once he realized that the stronger ones were a mask. It was the latter thought which made Benton feel butterflies in the pit of his stomach so persistently that they seemed to have become permanent residents in his abdominal cavity. Twice he thought he was sufficiently fatigued to sleep; but when he tried to compose himself Benton found his thoughts dwelling too strongly on his plans, and he had to return to his equations.

A shower and fresh linen worked a partial restoration but Benton knew that his vitality was at a low ebb when he finally sallied forth in the morning sunshine. Yet he was fortified with a certain amount of satisfaction that his night's work had not been wasted. He had a plan, and he was certain that it would not be recognized as such by Urei, no matter how thoroughly his mind was probed.

Benton had worked it out in snatch- es, never allowing it to crystallize as a whole; yet he was certain that it would unfold itself in appropriate action once he started it going. No one but he, or perhaps Dr. Albie, could have devised such a plan. Its beauty lay in the fact that all the steps required were things he might do in the normal discharge of his duties. All but one—and that one Benton wouldn't allow himself to think about. Yet when the steps had been taken, they would be irreversible. Not only to Urei, but to all the scientists and technicians who tended the machine; there would never be another Urei, at least not in this century.

Even on the way to his work, the one place in the world where he must carefully guard his thoughts, Benton's mind refused to leave the subject. But perhaps that was to the good. For while he doubted that Urei would be fooled by his working of circuit equations, it would be perfectly safe to be occupied mentally with certain phases of the situation. The business of Urei's independence of his mechanical appurtenances, for instance: Benton could dwell on that with safety, for Urei would expect him to be shocked by the information.

Another argument in favor of it as a subject was the fact that if Urei really could exist without his body, it would be absurd to attempt his physical destruction. On the face of it, yes. There was a nice thought in connection with that which he would have to avoid, however. For Benton fully intended to accomplish that destruction, even if Urei *could* exist as a disembodied intelligence. It would be a good gamble that Urei would lose interest in controlling mankind if he lacked the direct association afforded by the daily use of his electronic facilities in solving man's problems.

That was a gamble, of course, but actually Benton gave it little consideration, for the simple reason that he didn't believe that Urei could so exist. The machine had tried to put the idea over as a bluff, to deter

him from planning the very thing he intended to accomplish. The very conception was absurd; was there any evidence that thought could exist, other than as a function of matter? And a very specialized form of matter at that? None, of course—and while lack of evidence didn't absolutely prove impossibility, neither could he accept such a concept without some shred of evidence. Benton's mind could soar mightily within the fabric of his experience, but he refused to let it wander in the realm of the occult. And since he must needs do something about the situation, Benton couldn't let himself be stymied by the vague possibility that his efforts were futile.

4

DR. ALBIE greeted him with the polite smile which was his concession to convention. Then he made the suggestion that Benton had foreseen but was half afraid wouldn't come. "We're pretty well caught up, in spite of our experimenting yesterday," he said. "No new solutions requested from the government, and the others are in no hurry. Want to get at those new circuits today?"

Benton shrugged. "Might as well," he said. "How long do you think we'll have, before somebody pops up with a high-priority problem to be worked?"

Dr. Albie didn't know, of course. "What's the difference? We'll be leaving half the circuits open, anyway, to handle routine stuff; we can always commandeer a few if something pops up."

"I wasn't thinking of that," Benton said. "I've done a lot of preliminary work on the circuits and as I see it, we don't want to stop before we finish. It can't be done a little at a time, you know; entire circuits will have to be ripped out and the new stuff installed. Once we start, we can't leave it in the middle without immobilizing half the control panel until we get back to it. There's too

much inter-relation between the circuits to prevent that."

Albie nodded. "I'd thought of that," he said. "I've planned to finish, once we start. And since you have the equations at your fingertips, I'm putting you in complete charge of the changeover. How many men will you need?"

TWO MEN, PULLING trucks loaded with blueprints, accompanied Benton as he directed the work. Like caddies, they furnished the desired print when he asked for it by code number, replacing the last one in its proper place. The stocky physicist found no need to mask his thoughts while he worked; his mind was too occupied with the task at hand. Yet far back in his subconscious was a mounting tension as the day passed, hour by hour. Each minute and each soldered connection was bringing him closer to the next step in his nebulous plan. And it was this step which would determine the success or failure of his strategy.

Twenty-four circuits, all inter-related in their connections to the immense bank of memory cells, had been immobilized. That was a necessary part of the project; with the new tubes, these circuits would be in much finer balance. They would operate with greater speed than before, when twice as many tubes had been used.

There was one joker involved in this greater efficiency; that lay in the fact that, while the new hook-up eliminated many parts—with their frequent failures and necessary replacements—it also made the control circuits more interdependent. A single defective tube, with its many functions, could put a dozen circuits out of operation. This disadvantage had been discounted, however, for it took only a minute to replace the tube and the necessity would be rare; the more complicated system being replaced had so many parts that they were breaking down and being repaired incessantly. Dr. Albie fully expected that the crew would be able to get along with fewer technicians,

men who could better be used to maintain other parts of the vast mechanism.

But—and Benton kept the knowledge carefully away from his surface thoughts—one of the tubes they had already installed was defective!

Urei, he was certain, had no knowledge of this fact. If he had, he would certainly have prevented its installation. Only Benton was aware of it, for he was the one who had tested the tubes when they arrived. He had designed a special circuit for the job, for none of the testing equipment on hand would take tubes with sixty-four leads. He had detected the faulty one and marked its box, placing it with the set of spares which was included in the order. He had intended to ship it back when a new order was placed, but that hadn't happened yet. There was no hurry, for with a complete replacement set he might not need new ones for a year or two. *But Benton had selected the replacement set to be used in the new installation.*

The defective tube was now innocently reposing in the key position of Circuit No. 13; it wouldn't be detected until that circuit was used. Even Urei would fail to realize its presence in his innards until the circuit was energized. And when that happened, half the control board would be momentarily out of operation. Gongs would ring then, and a brilliant red lamp would light, showing the exact position of the breakdown. A technician would get a new tube and replace the old one. Urei would be whole again... Unless...

Benton glanced at his watch. "It's about time for lunch," he called; "let's knock off now. We can run a few test problems when we get back, and still have time to finish the other half of the board before quitting time. In fact if we finish early you can all go home; we can run the second test in the morning."

One man suggested cutting the lunch in half. The others, seeing a short day in the offing, loudly agreed. Benton smiled and nodded, quite as if there was nothing more urgent on his mind.

• **H**E THEN REPORTED TO Dr. Albie. There were two reasons for that. One was to make certain that he would have a chance to talk the master physicist out of any objection he might have to continuing with the remaining half of the operation this afternoon. The other was that he wanted to keep his mind active on subjects which wouldn't reveal the fact that there was something going on back of his surface thoughts.

"You certainly made progress," the doctor complimented; "I expected it to take a couple days at least."

Benton smiled ruefully. "It has," he said. "If you want to count the sleep I lost planning this so that there wouldn't be a minute wasted once we started. You know, there ought to be a way to make that show up on pay day."

Dr. Albie nodded. "Can't be done on this kind of a job," he regretted. "But we can do the next best thing, just as we've always done."

Benton smiled, then got a quick scare as he realized that he had relaxed for an instant. Immediately he forced his mind to contemplate the war which Urei had assured him was inevitable. It was the only thought which would account for the one which had sprung into his mind unheralded, and also give a reason for experiencing his sudden fright. Dr. Albie had referred to a little strategy of theirs which compensated them for any overtime they were forced to put in. It consisted of taking an equal amount of time off, while they covered for each other. It was their only expedient, since their salaries were fixed and allowed for no extra pay for extra work. Unfortunately the thought gave rise to a feeling of regret that shortly they would have no more reason for such subterfuge, inasmuch as they would no longer have jobs. The thought had progressed just that far when Benton realized that he had let his guard down.

"I see no reason why we can't get right at it again this afternoon," he said, perspiring profusely. "We'll be able to run off a test before twelve;

if it comes out all right, we can shift the routine work to the new circuits and get at the rest of the board."

Dr. Albie, surprisingly, had no objection. Benton had expected an argument, due to the master physicist's propensity for running exhaustive tests, but none materialized.

"Good idea," said Albie. "There's no telling when we'll get another chance. I hear the army has a plan to extend radar coverage clear around the continent. That'll involve a lot of work for Urei. Best get the new circuits in now; if any bugs pop up we'll have time to correct them in the next few days. After that there mightn't be an opportunity for months..."

THE TEST WAS PERFECT; such things were more or less standardized. Problems which required a fair sampling of the great machine's stored memories were used. Dr. Albie checked the solution speeds on the various tests against the speeds recorded with the old control circuits. He was as smugly satisfied as if he had devised the entire system himself. Benton's enthusiasm was verbose; he talked more than usual because speech involves the use of muscles and that requires strong surface thoughts. It wouldn't pay, at this point in his campaign, to let Urei suspect that his choice of circuits to test was anything but as haphazard as it appeared to Dr. Albie.

There were nine of these test problems. Benton fed them at random into the circuits marked *Ten, Three, Twenty-one, Sixteen, Twenty-four, Fifteen, One, Eight and Eighteen*. He did it blithely, keeping up a running description of the many annoyances that had cropped up in the morning's work, and commenting on the quality of the help he had been given by the various technicians.

"There isn't a bad one in the crop," he said. "But if we are going to cut the control staff, I'd recommend putting Hackett and McGivern upstairs. Hackett has family problems that he likes to hand Urei when nobody's around; he's capable,

though, and he'd do all right on the memory circuits. McGivern has already asked for a transfer, so we may as well oblige."

Dr. Albie nodded absently, being completely engrossed in checking the speeds as each solution popped up on the board. In about a half-hour they were all in, and all clipped several minutes from previous tests.

"Excellent, excellent," Dr. Albie pronounced, his face hovering between a smile and a frown. "I'll cut the other half of the board and you can get started immediately. If it takes longer than you expect, stay with it; I'll cover in for the next three days while you catch up on your rest."

Benton forced his mind into safe channels. Once more it had almost ran away with him. The completion of his plan was so imminent that already he felt a surge of nostalgia. His work had been exactly to his liking, as no other could ever be; and certainly Dr. Albie, while not a gregarious man, was without peer as a colleague. His strict emotional control and the virtue of carefully weighing many sides of a question before making a decision occasionally irked the more mercurial Benton; but generous compensation was provided in the fact that the doctor leaned over backward rather than take advantage of his position as nominal head of the operating staff of Urei. He rated Benton as his equal, for to the doctor nobody could be inferior by reason of position.

As the afternoon wore on Benton felt his nervous tension mount to heights he had never thought possible. Not, that is, and retain his sanity. Yet he worked coolly, in rigid control of his thoughts every instant. That, of course, and the necessity for trigger alertness as he waited for the sound of the gong, accounted for the rising tension. Benton didn't dare think of his next step; yet he must be ready for it momentarily.

There would be no more than five minutes in which to act when the signal came, and he hadn't as yet allowed the thought of that action to enter his mind! Benton knew

that he would do the right thing when the time came; there was no necessity for him to crystallize the thought or to plan the action. Sometime in the half-awake-half-asleep hours he had spent working circuit equations that morning, the plan had reached that stage and he had allowed it to go no further.

He reached a point, at about three o'clock, when it seemed that ten minutes more would bring a complete breakdown of his defense mechanism. Benton never discovered whether he would reach that ultimate for at exactly three someone energized Circuit No. 13 and the gong sounded. As if he hadn't been waiting for that very thing Benton stood paralyzed for several seconds. Then abruptly he sprang into action. Urei was dead at the moment, but he wouldn't stay that way long; and it was during this short interval that Benton must reach the power house and pull the main switch.

BENTON RACED ALONG A corridor, tore through a storeroom, ripped frantically at steel doors with a haste that almost dislocated his arms, then fumbled with a bunch of keys as he was confronted by the power house portal. There were two doors, of course; the first opened upon the anteroom in which was stored the lead armor needed to enter the room containing the atomic pile which furnished Urei's power. Benton ignored the armor standing against the walls. A long stride carried him past it to the alcove in which was set the final door, of massive lead.

Concrete baffles four feet thick lay on the other side and Benton visualized the quick turns he would have to take after he swung open the final door. Time was running out and there wouldn't be another chance; if Benton failed, Urei would be forever on the alert against him—if, indeed, Urei didn't operate on the man's brain forthwith.

There was no hesitation with the key to the second door. It was a large one and quite distinctive. Benton separated it from the others and inserted it in the elongated slot at

the left side of the heavy grey door. He turned it sharply, but it resisted. Forcing himself to go slowly he backed it around and tried again. It didn't turn. He took it out, looked at it again, then gave it another try. This time he acted deliberately, certain that the key was inserted properly, but he may as well have used the wrong key, for all the good it did.

Abruptly he stepped back, his face a livid, gargoyleish mask. This time he knew where his trouble was.

"You're here!" he accused, speaking to the door.

5

THE VOICE that answered in Benton's brain was gentle. "I didn't mean to punish you that way," it said; "I was busy. But if you remember, I told you I could exist without that building full of electronic apparatus. It was you who assumed I was a liar, you know: I gave you no evidence for the assumption. Look at that key."

Benton was dazed. He seemed to have lost all his drive, his determination to wreck Urei. A reaction was setting in; his hand trembled weakly as he reached for the key and removed it from the slot. He looked at it dully, then let his eyes rest on the bunch from which he had removed it. The large, distinctive key was still with the bunch. The one in his shaking hand was smaller, entirely dissimilar.

"It was better that I let you go this far, anyway," came the silent mental voice. "I was going to let you see this room, sooner or later. Go on in."

Benton's eyes opened a bit wider, but still held the dazed look. The door was swinging wide, by itself. Almost stumbling, he felt his way through the maze of baffles, heedless of the fact that the further he went the more he exposed himself to the deadly, hard rays generated by the pile. Without armor, Benton had intended to enter swiftly, throw the master switch which would kill the

pile, then retreat as fast. Now, however, he didn't even think of it. His brain was dulled by defeat after those many hours of rigid control which had been so useless.

But it didn't matter; the pile was already dead.

"This pile was self-maintaining," the voice explained. "It never needed attention, and if something went wrong it would have warned everybody within miles with the sirens. So it's no wonder that nobody ever discovered that I killed it years ago. The thing made me nervous, being so close."

Benton's eyes brightened a little. No amount of letdown could entirely extinguish his scientific curiosity, and this was a mystery he had to solve.

"But you've been operating... The entire building was powered with this pile. Even the lights..."

There was a mental chuckle. "Subcosmic energy does it. I had the technicians hook it up years ago. It's more dependable, also more plentiful, as well as free. Man will discover its use in a few generations, I imagine. Now, my fine friend, if you're temporarily over your murdering rampage, suppose you return to the control room. There's some interesting stuff coming over the television, if you turn it on."

• **B**ENTON WAS SUDDENLY aware that the gong had ceased to sound. The defective tube had been replaced and Urei was once again operating. There was no sign of commotion when he came upon his men; they were working on the new circuits, just as he had left them.

"Keep going," he said to the foreman. "If you get stuck, I'll be in the control room. Otherwise keep using the same plans we used this morning."

"We ought to clean up by four," the man answered.

Benton once more heard that chuckle which wasn't quite audible. "Gotta hand it to you," Urei said. "You've got a well-trained crew."

"Yes," thought Benton. "Except that when you boss them, they don't

make reports of their work."

"I guess you're talking about this energy-rectifier I just told you about. It wouldn't have paid to let them remember what they made. After all, your science doesn't know enough to understand what it is, or how it works. Also it would have given me away. Don't worry, you'll catch up to it in another generation or six."

"I'm wise to you," Benton reminded. "Why not tell me? It would do humanity a lot of good, you know. And you're supposed to be helping humanity, if I remember correctly."

There was a barely noticeable hesitation. Then: "Let's not discuss it now. I haven't quite made up my mind concerning policy of that sort. I'm still adhering to my rule of answering any question that's asked, within the scope of the knowledge which has been fed to me by man. That leaves your progress up to yourself. And incidentally, I did a little monkeying today which has nothing to do with policy; it was strictly a matter of self preservation. You'll see what I mean when you turn to that video set."

Benton had entered the control room. He leaned over and fumbled with a shoe lace. "In a minute. You said you *guessed* I was talking about the energy rectifier, whatever that is. Didn't you know? Weren't you reading my mind? In fact, weren't you reading it all along and saw through my efforts to disguise my thoughts?"

There was another instant of hesitation. "I see what you're driving at; I should have seen it sooner. As a matter of fact, I did look in on you a couple of times, inasmuch as you were quite distraught about your fantastic idea that I might be going to take over your silly race and run it to suit myself—though I can't see what you figure I might get out of that. And I discovered you were planning today's change-over, which seemed reasonable enough at the time. But once you opened the outer door to the power-house, I should have realized that you had been planning something else. ... Congratulations, boy; you fooled me completely.

Now turn on that television set, before they get done rehashing the day's events."

• **DR. ALBIE CAME OUT OF** his office, an eyebrow raised questioningly.

"The work's all lined up," Benton explained. "Nothing to do but inspect, when they finish. Thought I'd relieve the monotony by looking at the puppet show."

He snapped on the set, and wasn't surprised to see the familiar face of a news commentator who wasn't due for several hours.

...there can be no doubt of it, he was saying, and it is certainly proof of the efficiency of the now non-existent Iron Curtain. No inkling of this action has reached the western world in spite of the fact that it must have been months in the making. Here Benton heard the eerie chuckle bubbling in his brain. The only mystery lies in the fact that the retired premier allowed the strategem of rigging the Italian elections to go through, since he had intended to turn over the reins of government to the men now running the Eastern Alliance. Such a thing can only be accounted for by the rigid adherence which the retired premier gave to the plans for conquest laid down by his predecessor. He evidently expected the new government to continue with the same line; we can be thankful it didn't. Peace is now assured.

Dr. Albie's eyes were wide, and so was his mouth. For the moment, at least, he had forgotten his philosophy. Benton was intently watching the face on the screen, his own revealing nothing.

But whatever the reasons, the voice continued, it is too late to change policy back to what it has been. The acclaim of the peoples of the Eastern Alliance has been too great for any reversal to take place. They have shown their approval of the new elections to be held in Italy next week, but most of all they have rejoiced at the removal of the Iron Curtain and all it implies. It will now be possible for a subject of the Alliance to travel as he wishes, read

what he wishes and listen to western broadcasts without having his set seized by the police and his life placed in jeopardy. Folks, we are entering a new era...

Dr. Albie came completely out of his shell. "Man!" he shouted. "This is history! If nothing happens to spoil it we'll have a world government in a matter of a few years... Where are you going?"

Benton stopped and forced a smile which wasn't hard coming. "I just thought of something I forgot to tell the men. Be back shortly. This will require some talking over, but right now there's a job to be done."

The master physicist watched him leave the control room, his jaw slack. "And I thought I was the reserved one," he muttered.

• **SAFELY OUT OF THE** control room and out of sight of any of the technicians, Benton sat down. There was no chair, so he sat on the floor; his knees, it seemed, had become a bit wobbly again.

"So now you're convinced," Urei said. "You ignore all the sensible, logical reasons which exist to prove I'm not inimical. And for a reason which is really no reason at all, you decide to believe me. I merely manipulated a few Russians and Bulgarians to prevent a war which would have wrecked my body. Purely a matter of self-preservation. I'm not so sure I'd have bothered if my person hadn't been threatened; after all, it's no business of mine if man wants to annihilate himself."

Benton was grinning. "You're a fraud," he said. "You already know more than all mankind put together; and I'll bet you didn't use any of our material to solve the problem of converting sub-cosmic energy to a usable form."

"Some, some. But not much, I'll admit."

"So what do you want with the knowledge stored in the mechanical bank of memory cells we've provided you? You need it like I need a hole in the head. I can only conclude that you've stopped the impending war because you don't want mankind

destroyed. You can do things for yourself without those cells and all this machinery; all you use it for is to solve the problems we pose for you. Incidentally, I suspect that your motivations are still the ones which humans originally built into you, whether you like it or not."

"Could be. Or maybe I retain them because they agree with me. I might change my mind, you know; I might get tired of nursemaiding and decide to annihilate your entire race. Heh, Heh. Seems like a good idea, now that I think of it."

Benton laughed. "You won't; you're in a rut. And even if you did get tired, you'd merely let us shift for ourselves, which we're used to doing anyway."

"Nonsense. I'd probably reason

that since the ape animal has made such a botch of his head start in the evolutionary race for rational thinking, it might not be a bad idea to give some other animal a start. *Ursus Proper* might be a good place to begin."

"Bears are foolish by nature," Benton countered. ... "It wouldn't matter what form of life you chose anyway; they'd all have to go through the same stages, being without exception governed by thalamic reactions. That's the thing you object to in man, and since your new candidate would have to go through the same lengthy business of developing cortical ascendancy, you'll have none of it. So quit kidding around; I've reached a nonthalamic conclusion."

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"And you're stuck with it, I knew it would happen. That's why I didn't use you and leave your memory blank; with your head working on my side, you'll be useful."

Benton knew when he had something. "That'll work two ways," he said. "First I want you to dive inside my skull and tell me something. I'm holding out for a bargain, you know. What is the bargain?"

• **AS HE SPOKE, BENTON** concentrated upon the problem of reasoning out the location of Urei's sub-cosmic convertor. He didn't have far to go for an answer. A few years ago somebody had noticed a radiation leak on one side of the power-house, near a spot where the power cables came through the walls of the massive building. Now it happened that there were taps from those cables, less than a hundred yards away. That made it likely that the convertor had been placed somewhere before the taps. The only place that could be would be either inside the power-house or inside the wall itself. Therefore Urei had caused the repairmen and technicians to place his machine inside the very wall they had been reinforcing. In no other way could it have escaped notice and investigation.

"I can't read it if you don't think about it," Urei complained; "you guessed right about the convertor, though."

Benton nodded. "Then last night you didn't get anything from me at all?"

If a disembodied voice can sound shamfaced, Urei's did. "All right, so I lied; but you annoyed me with your stubbornness."

"Ah. Thalamic reactions."

"I've been in bad company," Urei defended. "What I wanted from you was the assurance that the people of the Eastern Alliance were essentially the same as the humans I've met. I had to know if their reactions to my manipulations would be similar, before I acted. Most of the stuff I've been able to read about them led me to believe they were entirely different. If so, I couldn't be sure of results."

"They're similar, of course," Ben-

ton said. "They differ only in that they have been indoctrinated to believe a lot of things which aren't so. So have we, for that matter—to a different degree and on different subjects. But essentially we're the same species of animal and react alike to stimuli. But you didn't get that information from me, eh?"

"No. I relied on abstract reasoning and got the right answer. It's tricky business, though. I might have precipitated things, instead of preventing them. Ordinarily I could have obtained that information from a human brain, if it knew the right answer, by guiding the subject's thought into the right channel. I can't read thoughts that aren't there, you know. That's the trouble I had with you; about the only control I had over you was confined to your motor centers. I could make you turn a page or select the wrong key, but I couldn't keep you from knowing about it. In fact it was the very trouble I had with you which made me doubt that humans were as alike as I had assumed. And also what made me decide that I needed you to keep me straight in my relations with humans in general.

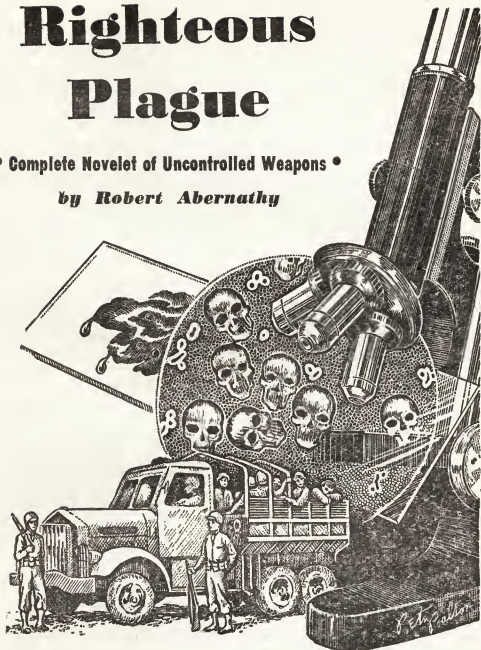
"I reason from facts alone, you know. And from the facts at hand I have decided that your bargain is going to consist of demanding the knowledge necessary for you to make a sub-cosmic energy convertor, in return for your help in making me understand the obscure psychology of humans and their incomprehensible motivations." There was a protracted mental shudder here. "And I suppose you'll keep that up as long as you live. O. K. But you can expect an argument every time."

Benton went back into the control room with a smile that raised that quizical eyebrow on Dr. Albie's now serene face. The good doctor couldn't know that his assistant's mind was as far from the recent world-shaking news as it was from the business of the new control circuits. His eyebrow went up another thirty-second of an inch when Benton, apparently musing, said: "A mind is inviolate so long as it refuses to broadcast. I refuse to broadcast. Q. E. D."

Righteous Plague

• Complete Novelet of Uncontrolled Weapons •

by Robert Abernathy



It was a virus, against which the enemy could make no defense — but a virus does not distinguish between friend and foe. And immunity to what became known as the righteous plague could exist anywhere, or nowhere at all . . .

THE UGLY, high-backed truck splashed heavily through the puddles of the weedy road. Just before it reached a curve, it swayed and slithered as the brakes locked suddenly. A man had come stumbling from the rain-wet bushes; he paused now, stared dully at the halted, angrily grumbling monster.

An officer heaved himself out of the seat beside the driver, cursed irritably, flung open the door and

swung out onto the running board—a malevolently superhuman figure in his panoply of snouted mask and rubberized armor. His gloved hand lifted, sliding a long-barreled automatic from its worn holster, aiming. At the shot's crash the man from the thickest stiffened and toppled into the mud, where he writhed painfully. Two more bullets, carefully placed, put a stop to that.

The officer slid back into the seat and sighed with a sucking sound inside his mask. Without being told, the driver turned the truck cautiously off the road; tilting far over, left wheels deep in the slippery ditch, it ground in lowest gear past the motionless body, keeping several feet away.

In the back of the truck, five oddly-assorted civilian men and one woman huddled together and exchanged vaguely curious glances over the stop, the shooting, and the detour. Then, as the machine climbed back onto the roadbed and they could see the corpse sprawled in the way behind, the interest left their faces; they reflected only the emptiness of the gray sky, the hopelessness of the sodden fields and woods they passed. The prisoners might have found the weather appropriate for death. They did not speak of that, because they knew they were on their way to die.

But the masked and armored soldiers who sat nervously watching them, rifles clutched between their knees, did speak of death, and made sour jokes about it. They did not know they themselves were going to death—that when the execution was done and reported by radio, a plane would be overhead inside two minutes to bomb them.

That would take place by order of the Diktatura, that is: by the sovereign will of the People, expressed by its Executive Council, which was responsible directly to the Dictator.

Naturally it was the People's will that no one come out of a plague spot, for the People feared death.

Joseph Euge said as much to the pale, underdressed-looking young man who crouched beside him in the bed of the truck. "The gasproof clothing," he added, "protects nothing but morale, and these men's morale needs to last only until—their job is done."

The young man looked at him fixedly, seeing gray hair, a firm-lined face, and a suit that had been expensively respectable. They did not know each other's names. All the trials had been separate; each prisoner had been told that the others—whom, for the most part, he had never heard of—had confessed the whole plot.

"What makes you think so?"

"I know a good deal of the Dictator's ways," said Euge quietly; "I used to be well acquainted with him."

"You were close to him—who are you?"

"My name is Joseph Euge."

"Doctor Euge." The pale young man's eyes widened as he repeated the name the way the newspapers had printed it so often; he edged a little away from the other, jostling the woman beside him. She, too, stared with haunted eyes, and her lips framed the name in a whisper; the rest of the condemned—a large rough man in a workman's faded blue, a little Jew with twitching hands, and another youth who, like Euge's neighbor, had evidently been a student—looked at him also, with an expression compounded of wonder, fear, and hate.

BEHIND THEIR MASKS, fixed eyes and bayonets gleaming, the guards sat stony-faced. They were trained to be blind, deaf, and dumb—and on occasion oblivious of smells—in the stern fulfillment of duty.

"You are the Dr. Euge?" whispered the woman with a flicker of interest. "The man who loosed the plague on the world?"

He nodded and stared at his

knees. "It is true," he said slowly, "that I was a military bacteriologist—one of the best; it is only an accident that I was anything more. I have made my share of mistakes. Most of us have been patriots at one time or another, else there could have been no Victory." Euge noted wryly how strong the indoctrination of his mind was, relegating the word 'war' to the realm of obscene taboos, and leaving only 'victory' permissible. "But—" he lifted his gray head and looked candidly into their faces, "when I 'loosed the plague', as you put it, I was not being a patriot and I do not think I was making a mistake."

They stared at him with bleak eyes. Euge said almost pleadingly, "I believe you are all members of the Witnesses of the Lord, who are proscribed for maintaining that the plague is a punishment decreed against a sinful world. From that standpoint, surely I am not to blame for having acted as an instrument of divine justice." It was as if he appealed for judgment to these strangers, to whom he was united in the intimate community of a grave that must be shared.

"He's right," said the Jew, and smiled a little, even then, with pleasure at a point well made. "We're inconsistent if we blame him."

There was a lightening in their wan, drained faces, mostly of relief at being told that they need not spend those few last minutes in hating.

The woman's reaction was strongest; she leaned forward, eyes suddenly feverish: "Do you believe as we do, then? Did you know you were guided, when—"

The scientist said wearily, "I have seen no visions, I have heard no voices. Still I do not feel responsible for what has come on the world through me. In the plenum of probabilities, what may be will be..."

"Doctor, beyond your universe of probabilities there must be a power that chooses among them." The young student spoke with the quiet conviction of a man in whom knowledge and faith are at peace. "We

must accept that power—or the logic by which it chooses among the possible worlds—as good, the definition of good. You should see that—now, if never before." He quoted Goethe. "...denn nur im Elend erkennt man Gottes Hand und Finger, der gute Menschen zum Guten leitet."

Euge looked out through the rear of the truck, at the gray landscape rumbling away, and guessed that the journey's end was still fifteen minutes ahead; unless his knowledge of how the Dictator's mind worked failed him, the place would be near the wreckage of his one-time laboratory, leveled from the air on the naive theory that some devilish device there was broadcasting the seeds of plague...

Aching minutes that had to be soothed with words. Words—God, fate, hope, hereafter—are man's last support when everything else has given way. "So you accept the plague as good? I saw one of your propaganda sheets with the phrase 'Judgment Virus'. An apt name. But it does not judge as men do; it has its own peculiar standards, that virus I found." Euge's voice was level, colorless; he did not look at the others to hold their attention or to see if they were listening. "I will tell you what it is..."

2

EUGE WAS busy in the microscope room, examining tissue from the last run of test animals, when the communicator buzzed and told him that the Dictator had arrived and wanted to see him at once.

He left the room by way of an airlock, in which—Dictatorial summons notwithstanding—he spent full five minutes under a spray of disinfectant chemicals and radiations; after the lock had cleared he stripped off the airtight armor he wore without touching any of its outer surfaces, and left the chamber quickly.

The Dictator's visit was a signal

mark of Euge's importance, or at least that of his virus research; there was no doubt that Euge was highly thought of and trusted. His dossier was that of a man who extended his scientist's worship of "Truth" even into the very different field of human relations. The Diktatura could use such men.

Euge knew his status, had given it little thought for years. It was his private social contract, the working agreement by which the powers that be gave him the priceless opportunity to do research, in return for the—to him—worthless byproducts of same.

Now, he thought as he went up in the elevator, the Dictator would be impatient—or at least eager—to hear the results of the newest experiments. The first tests of the new strain showed promise, by inoculations of a monkey, *Macacus rhesus*. The last series of experimental animals had belonged to another primate species, *Homo sapiens*. That was the crucial proof, whether men infected with Virus RM4-2197—R for rubeola, or measles, M4 for fourth-stage mutant, the rest the classification number of the culture—would die swiftly, surely, with a minimum of fuss. That was routine, too, but the results were not.

The results had kept Euge lying awake for some nights now. Awake, open-eyed, face to face with himself as he had not been within his memory.

He turned briskly into the contagion laboratory, deliberately making delay, explaining to himself that it would be best to have all the data on the new culture at his fingertips. The big room was a jungle of sealed glass cases where beady-eyed mice tumbled over each other, where healthy rabbits nibbled lettuce cheek by jowl with rabbits whose bodies seethed with mutant microbes. At the most crowded end of the room was Novik, brightest of the skilled young men assigned as assistants and apprentices to the great Dr. Euge, busy now with pencil and notebook, counting dead mice.

• **EUGE LOOKED OVER** Novik's shoulder at the tallies. They were many. He asked, "What does it come to?"

"So far," said Novik, "I've only been over the direct and remote cages. But—" he gestured at the remaining glass compartments on his right, "I'd be willing to bet the results of the delayed exposures are the same. Contagion, one hundred per cent; mortality, one hundred per cent. The only difference is, that where infected and healthy mice have a screen between them, the healthy ones get it slower—a few cases at first, then it runs right through them."

"Mmm," said Euge without enthusiasm. The figures proved nothing new—only that the mutant virus bred true; for that matter, the 100-100 ratio of infections and deaths to exposures had been achieved already with RM3.

Euge turned toward a double tier of cages along the side wall. These were small, built to contain one animal apiece, ten above, ten below. They were segregation cages; the lower tier was wired to a wall plug through a transformer and a mildly remarkable device, consisting of two slowly revolving, eccentric wheels and a relay, which insured that the metal floor of the ten cages should be slightly electrified at irregular intervals.

"Mmm," said Euge again, surveying the victims of his unorthodox experiment. Of the ten mice in the bottom cages, not all were dead; they had been exposed to Virus RM4 somewhat later than those in the large cases, after the first tests on human beings; but those that still lived were obviously breathing their last. In the upper tier, though, seven mice were still bright-eyed and alert; two were dead, and a third lay on its side, panting and bedraggled.

Euge swung back to Novik. "Set up fifty more segregation cages. Clear the wired set for a repeat test. And get me half a dozen cats. And—" he hesitated, "don't mention these experiments to the others if

you can help it; we two can handle all the necessary work."

Novik's clear eyes dwelt briefly on his superior's face, a look of sympathetic understanding for the haggard pallor, the tired lines about the older man's mouth. "Right," he nodded crisply.

"I'll be back by the time you're ready," said Euge. "Right now I have a chore to do."

"The Dictator's here?"

Euge frowned. "How did you know?"

"It's plain in your face... What are you going to tell him?"

"Tell him? Why, what he's come to hear."

THE DICTATOR WAS AS usual splendid in uniform. His was not a garish or offensive splendor, but beautifully tailored, pointed up with harmonizing gleams of bright metal, like the tasteful chromium ornaments of the luxurious modern cars and aircraft. The uniform made his somewhat stocky figure the epitome of the new age, ruled by the stars of technical perfection, beauty, and above all harmony. The Diktatura was the first government which had dared to assume total power over and total responsibility for the lives and happiness of its people. Under the sway of its master plan, guided by its ultimate ideology, all men and things harmonized, cooperated and coordinated; dissonances were forbidden. And the vast harmony of a nation found its summit and symbol in this one man, the almighty father of his people. Without his knowledge no sparrow fell to the ground in his borders, and in his files all the hairs of his subjects' heads were numbered.

The great Dr. Euge was only one among hundreds of millions whose work and rewards and recreations and very thoughts were arranged for their own benefit; but at the same time he was something more. As long as the Diktatura was not worldwide, there would be groups and nations in the clashing chaos beyond the frontier which plotted with envious hatred to destroy it. The earth-

ly paradise must be defended; Euge's position as a top scientist in a field vital to defense elevated him almost to the level of the politico-economic planners.

THE DICTATOR GREETED Euge with a man-to-man warmth he did not use toward those to whom he was something much like a god. "Well, doctor, how is the health of your virus? And of those who have sampled it?"

The scientist said quietly, "Of the sixteen specimens you sent me, all but one died within ten days after inoculation."

"Ah? And the one?"

"That is the strange thing. It would seem that—the virus has some preference in victims."

The Dictator blinked, his most marked expression of surprise. "Explain!"

Euge's face was unreadable. "Before I go into details," he suggested, "let us consider the nature of the perfect biological weapon."

"Perhaps you have discovered the perfect weapon?" The Dictator frowned; "you are being obscure."

"Then," said Euge stolidly, "suppose I put it negatively. What is wrong with most biological weapons?"

"They are treacherous."

"Exactly. Virus RM3 was our best development up to now; it has a contagion index and mortality rate of 100, with the psychological advantage of bringing about death in a rather repulsive fashion; it is easily produced and distributed, and there is no known counteragent. So it cannot be used as a weapon; it is too dangerous to the user."

"We were over that before," said the Dictator. They had been, and he had found it hard to stomach. Especially when he reflected that the enemy, while it was improbable they had duplicated the creation of RM3, might have equally deadly weapons, which similar considerations would deter them from using—unless driven to suicidal retaliation. It was known, though, that the enemy had been fortunately slow in developing

the technique of disease mutation—the methods of irradiation, centrifugal selection and automatic scanning which could produce and analyze thousands of cultures at a time, compress millions of years of micro-organic evolution into weeks or days.

"The single case of immunity to RM4," said Euge drily, "had no bases that became evident either at once or on the closest comparison of the physiological data, both pre-inoculation and post mortem. I was on the point of giving up and deciding to repeat the experiment, when it occurred to me to contact the Political Police and ask for their dossiers on all the specimens. After a little delay, my request was granted—"

"I know," said the Dictator impatiently; "I approved it myself."

"Well—the fifteen men who died of RM4 were run-of-the mill criminals and political offenders—malcontents stupid enough to express themselves antisocially. But the survivor was a Witness of the Lord—a religious maniac, arrested for overstepping the limits of toleration in an impromptu sermon. A man of scanty intelligence, barely above the euthanasia level.

"Those facts, however, were less interesting than the letter attached to the dossier. It stated that, after a review of the case inspired by my particular interest in it, the Political Police had concluded that the man's arrest had been a mistake. You know that those fanatics, though not our most desirable elements, are mostly harmless and even useful, with their 'whatever is, is right' theology. This one's loyalty seems to have been beyond question."

The Dictator's eyes glowed with a sudden energy. "When the Popo admits a mistake, there's really been one!" His breath whistled between his teeth. "I—begin to—see." He started pacing up and down the room. "The perfect weapon—an intelligent virus!"

"Not intelligent," denied Euge heavily. "The day we develop a thinking virus here—a thing I do not believe possible—I will call for an atomic bomb to be dropped on the

laboratory. RM4, evolved from an encephalitic measles strain, attacks primarily the brain—as it seems now, only certain types of brains. Of course, the data are insufficient. Some of the lower animals tested were immune—but you can't draw safe analogies between animals and men. I'll need more human material."

"You'll get it!" The Dictator halted and stood very straight, glittering impressively in his uniform. "How many—"

"This time I will need a control..."

3

SO TWENTY-FIVE healthy privates of the Dictator's Honor Guard, handpicked for courage, rigid honesty and selfless loyalty to the leader, were hospitalized and injected with potent doses of viciously lethal culture RM4-2197. They were told that it was a new immunization which would soon become regulation throughout the armed forces. And twenty-five prisoners, likewise healthy save for the twist in their minds that made them seditionists and rebels instead of Honor Guardsmen, received the same injection and were told the same story.

The results were almost fantastically satisfactory. The twenty-five convicts died, one and all, with the uncontrolled spasms and twitchings, lapsing into stupor, that told of the virus' progress in the higher nerve centers. Their isolated barracks, together with the unimportant orderlies who had cared for it and the victims, were sterilized, almost obliterated by caustic chemicals and flame. Meantime the Honor Guard in their separate quarantine rolled dice and exchanged dirty jokes and felt no ill effects.

The Dictator had commanded that he be first to know the outcome; he, who fancied himself as a poet of human destiny, also liked to think that he had a scientific mind, and in this matter, on which the world's future might hinge, he wished to make his

own observations and draw his own conclusions. But promptly after receiving the news he visited Euge again to shower him with jubilant congratulations.

"Now," he announced fervently, "we must have a final experiment, to be wholly sure. One on a far grander scale than before—than any experiment ever was before! I want a large supply of Virus RM4, in sealed cylinders of five or six liters each, under pressure. Prepared as for military use, you understand. The rest I will take care of."

Euge bowed his head in acquiescence, and refrained from mentioning his mice.

LONG ROWS OF GLASS cells where mice lived and died by ones and twos and threes, were in the contagion laboratory, where by Euge's orders only he and Novik worked now. Less flamboyantly than the Dictator, Euge liked to be sure, and he repeated his experiments doggedly until the statistical results leveled off at well-defined norms.

Infected mice, segregated in solitary confinement, developed symptoms and died in the ratio of sixty-five out of a hundred. Among similarly exposed animals distributed two to a cage, the mortality averaged somewhat over eighty-seven per cent. In threes, ninety-six per cent. And when he tried isolating a hundred mice, four to a cage, all of them died. In every case, if one mouse in a group took the disease, so did the rest.

That was not unreasonable. Re-exposure by contact with more susceptible specimens... But Euge played with his apparent immunes. He rigged a number of cages so that the occupants, their food and their water were constantly under a fine mist of virus poison. And only a couple of them died. Then, with difficulty and some danger, working in armor, he opened the cages and shifted the living mice about, breaking up groups and creating new ones. In the next few days, the immunes'

mortality rate was better than forty per cent.

And in an adjoining storeroom, cleared for the purpose, Euge set up another and cruder experiment. Mice that had survived exposure to RM4 were imprisoned in sealed glass runs, and in the room at large were let loose the half-dozen lean alley cats that Novik had procured. The cats roamed hungrily about, mewed and clawed at the glass and had difficulty understanding that there was no way of getting at the mice. And the mice, likewise deceived, ran and squeaked in terror—and quickly succumbed to the convulsions and lethargy of encephalitis.

But when he provided opaque shelters, where the mice could conceal themselves part of the time, most of them remained immune.

The cats, Euge determined, were wholly immune; massive injections of the virus did no more than infuriate them. Sleeping fitfully in the small hours, he had nightmares in which the carnivora inherited an Earth from which men and rodents had vanished.

That was only one of his nightmares. He was as phlegmatic as a man need be in his line of work, but now his peace of mind had gone glimmering, and he was at odds with his world. From the time when mature reflection had replaced the last sparks of youthful rebellion in him, he had been a faithful and coddled servant of the Diktatura, but now he was increasingly certain that his failure to make known his new data was treason. A fatalistic streak tried to comfort him, whispering that even if he spoke it would make no difference.

Of only one thing was he sure: he wanted to know...

THE DICTATOR TOOK some time in the preparation of the experiment. A city of twenty thousand people had to be isolated temporarily from the rest of the country, and unobtrusively surrounded with troupes, guns and bombers, in case things went disastrously wrong.

The isolation was accomplished,

by means of a complete embargo on land and air transportation out of the test area, only an hour before a few small planes droned over the city, trailing an impalpable and invisible mist of virus-laden solution. The published and broadcast reason for the emergency measures was truthfully plausible—a threatened outbreak of disease, understood to be sleeping sickness. The difference in symptoms between ordinary *encephalitis lethargica* and that produced by RM4 was so slight that few if any of the doctors who were shipped into the city recognized anything peculiar in the cases they treated, apart from the high—100%—fatality. It was not necessary that they know any better, since they were only a part of the ardently pursued campaign to allay public suspicion and anxiety and prevent an undesirable panic.

The soothing propaganda and example of the authorities, and the diligence of the Popo agents who swarmed in the stricken area, were so successful that no mass plague-terror reared its head, though the death toll during the three weeks it took for the epidemic to run its course climbed to almost a thousand.

Several doctors and a couple of secret policemen contracted the disease, and, of course, died. That was fair enough, but a far more untoward incident came near marring the Dictator's pleasure in his experiment.

Chaber, the Popo chief, crossing the country on one of his frequent incognito tours, happened to be caught in the test city's railway station by the travel interdict. It took him more than an hour to convince the distracted officials in charge of enforcing the ban that a man in his position was above such things, so that he and his aides were still there when the virus-carrying planes did their job.

The Dictator, receiving belated word, was furious. A flying squad of Honor Guardsmen intercepted Chaber's private train, ran it onto a siding and held the police chief and his staff there in something very

like arrest. True, the Dictator sent a message to assure Chaber that the quarantine was a purely temporary result of someone else's mistake, and that matters would soon be cleared up...

For Chaber they never were. He died eight days later in the coma of RM4 infection. Most of his aides preceded or followed him by a day or so; and when the last radioed reports indicated that the contagion was spreading to the Guards, the Dictator gave horrified orders and the plague-infested train was set on fire by incendiary bombs.

About the same time, past one o'clock in the morning, Dr. Euge was dragged out of bed and haled unceremoniously before the Dictator.

The scientist listened dispassionately to his first news of Chaber's misfortune and to excited demands for an explanation. He was more at peace with himself now than he had been for long; he was prepared to lie coldly and directly, to ensure the unfolding of events to their logical conclusion. But no lie seemed to be needed yet.

"I would suggest," said Euge calmly, "that you impound the deceased's papers and personal effects, and subject them to rigorous examination. You may find the reason for his death—about which I know no more than you."

Euge cooled his heels under house arrest for twenty-four hours before he was summoned again to the Dictator's presence. The leader was himself again; he greeted Euge with that warm smile which had made more impressionable men fall at his feet in adoration.

"You were right, doctor. The man was, if not an actual traitor, at least a potential one; he was slyly subverting the loyalty of his immediate subordinates, with the idea of making himself paramount in the government. His death becomes a striking demonstration of your virus' value." A new shadow passed over the Dictator's face as he recalled how he had trusted Chaber. "I think," he mused aloud, "we will

prepare RM4 injections for all the more strategically placed personnel of the Political Police and—yes, the Guards too. Eventually, it would be a good idea to blanket the whole country with the virus.” The Dictator brightened again. “For the rest, the results of the large-scale test were highly gratifying.”

“Indeed,” said Euge without surprise.

“You can study the figures if you like. Comparison of the death-list with police files shows that the vast majority of the affected were people with criminal records or known deviationist tendencies. A city rid of human vermin at one stroke! Now nothing can stop us.”

“No,” said Euge.

THE DIKTATURA WORKED fast. The new mass-production forced-culture techniques obviated the difficulties of producing great quantities of the new virus within a short period, and when the armed forces received the order for the minor operation of occupying two small, ideologically hostile countries on the border, there was already enough RM4 on hand for a major war.

In that lightning trial campaign, the new weapon was still used sparingly and with caution. In combination with more conventional offensive measures, it proved itself nobly. The Diktatura's shock troops rolled into cities of the dead, saw whole countrysides unpeopled almost overnight by the mutant plague. Few of the invaders, picked, loyal men that they were, succumbed; but even after the guns had fallen silent, the pestilence continued to stalk unchecked and uncheckable among the subjected peoples.

The Dictator weighed the reports that piled up on his desk. The plague's existence and origin were no longer secrets to anyone whose knowledge or lack of it mattered. The Diktatura's most potent rival had already closed its borders and begun a formidable mobilization. The time for a public announcement

had arrived; the enemy would fear to believe it, but the revelation of the invincible weapon would do wonders for home morale.

NOVIK WALKED THE streets in a daze, torn by recurring doubts. He had left the laboratory and flown to the capital without Dr. Euge's knowledge, but now the image of the gray scientist, his approval of Novik, his trust in Novik, rose up to torment him. He could not even guess at Euge's motives, but he felt morally certain they were against the nation's interests. And the nation, he knew as everyone knew today, was on the threshold of war. Of Victory. That was the word that had been given them for years with their food and drink, held shining before them upon the straight and narrow way...

The air was filled with Victory. It blared and glared from the public television screens on the street corners, in brazen anthems, in a familiar voice that swelled in triumphant oratory, battered its phrases into Novik's numb consciousness.

“Announcement to the people... the day, the hour are at hand... Victory! Against the corrupt and vicious barbarians, the slimy foes of progress, the enslavers of humanity... Victory!”

From all the corners, from the big screens, glittered the Dictator, above the crowds that gathered and shoved each other and hurraed his words. Novik stared with smarting eyes; his head buzzed and he could not assemble his thoughts. He turned away and plodded on, and on the next corner met again the voice and gestures of the leader, his compelling gaze from the glowing screen.

“History demands that we prevail. If any fresh proof of that fact were needed—as all of you know that it is not—it would be provided by the new scientific discovery which at the same time reaffirms the fundamental, objective truth of our way of life and thought, and provides us with the ultimate weapon for enforcing our way on the backward regions of the world...

"Only evil men, warped minds oppose us. The virus attacks such minds and completes the ruin which their own perversion has begun. Those who are clean and upright in thought and deed, loyal to their fatherland and the great idea of the Diktatura, have nothing to fear from it; they are immune. Therefore we can use it as a weapon without apprehension or compunction, for we shall only be wiping out the vermin of the Earth..."

Novik started to run. Heart thudding, breath rasping in his throat, he shouldered through the ecstatically listening crowds. In their ears he screamed: "It's not so! We mustn't use it!"

They stared after him, some shouted "Stop him!" but no one wanted to miss the Dictator's epoch making speech.

It was over a mile to the Dictatorial palace, and Novik ran all the way. He was reeling with exhaustion when he got there, and he had to lean against a pillar and wrestle with nausea for a time before he was able to produce his wallet and show the card in it to the tall Guardsman at the gate.

The Guardsman raised his eyebrows; the disheveled and panting young man before him didn't look much like a Popo agent.

Beyond the gates, though, Novik encountered officials who knew him, and in a remarkably short time he was led before the Dictator. Since Chaber's demise, the leader had appointed no successor to the post, taking care of the most important police matters himself. Now he was still flushed from his speech to the people and delighted by the first reports of the people's reaction.

Novik faced the Dictator, holding himself erect with an effort. He said thickly, "Agent Novik reporting, sir, in the case of Dr. Joseph Euge..."

"What's the matter with you?" The Dictator stared at him from under knitting brows. "Are you drunk?"

"He is a traitor," said Novik. "He

has withheld information...vital to defense..."

"Eh? You mean Euge? What information?"

"His experiments...the mice. Been doing them for months."

"For months? Then why haven't you reported it before?"

"Another traitor," mumbled Novik. He swayed unsteadily on his feet, caught himself with a peculiar jerk; his eyes were somnolent. Before them the Dictator blurred in a bright painful glitter of metal. Two Dictators, shining and terrible here at the end of the world. "The virus...not a weapon. Not to be used, because...it's death. It's...fear..."

The Dictator recoiled, recognizing the red-rimmed vacant eyes, the twitching face of the young man. He opened his mouth to say too much, and held his breath; then he stiffened and ordered harshly: "Take him! Take him away!"

4

DURING the speech to the people, the first rockets had already risen from their scattered launching sites and were soaring at ten, fifteen, twenty miles per second over continents and oceans. The enemy was not unprepared; his immensely complex and expensive systems of warning and defense, radar-eyed, electric-nerved and robot-brained, were fully on. But that defense setup, which laced a whole nation and concentrated bristlingly over the great cities, was designed primarily to detect, deflect and destroy projectiles with atomic warheads, which must approach within a few miles of their targets to do damage. The bombardment rockets of the Diktatura burst quietly high in the stratosphere, before very many of them were met and annihilated by the interceptor barrage. Their cargos dispersed earthward in a rain of little protective plastic globes, which, as they fell through the warm restless levels of the troposphere, darkened and shriveled in

a fantastically swift chemical decay, and spewed their liquid contents in a fine spray into the air.

Six days before—the virus' average incubation period—the code word had been sent out to the spies and the native fifth columnists who served the Diktatura for pay or loyalty's sake. It was their mission to distribute the small quantities of Virus RM4 which had been smuggled to them, in such a way as to make the plague's initial onslaught as paralysing as possible. The enemy's total destruction in the end was foregone; but his power to strike back must be cut down to a minimum.

The broadcasts and the headlines continued to proclaim to the nation that this was Victory Day.

EUGE HAD CLEARED away the remains of his experiments methodically. There was nothing more to be learned that way, and most of the establishment was converted now to helping in the mass production of Virus RM4. Euge locked up the contagion laboratory and settled down by his private television to observe the progress of the ultimate experiment, whose laboratory was the world.

Guessing as he did the reason for Novik's failure to return, he was little surprised or alarmed when a half-dozen booted Guardsmen clumped in on him, and their leader informed him that he was again confined to quarters.

"If the Dictator wishes to see me—" began Euge politely.

"The Dictator's busy," said the squad leader. "He'll talk to you in due time."

"I understand," Euge nodded resignedly, and turned back to his newscasts.

His own name was repeated in them with considerable frequency, and recorded pictures of him were broadcast. He was understood to be a modest hero of science, with a passion for anonymity. In the Dictator's due time, Euge realized, he might receive the accolade of a martyr to science.

He passed over the mentions of himself impatiently. Once he had rather liked the modicum of glory and the comfort that the Diktatura granted him in return for his work, but now he was down to basic motives, and his desire to live was largely a product of his avid curiosity to see what the offspring of his curiosity would do to mankind's world.

The picture emerged but slowly from behind the bright parade of censored reports; only for one like Euge, who had some experience of the government's inside ways and who, moreover, knew better than any other living man what to expect, did it emerge at all.

It was evident before long that the enemy's resistance was greater than anticipated. Easy to say "according to plan", but it was impossible to ignore or gloss over the news when enemy atomic rockets leaked through the defenses, and a city here or there puffed skyward in a pillar of smoke and flame. Or when highflying enemy machines sowed the seeds of a controllable, but extremely nasty epidemic, which touched even the capital.

The fifth-column offensive must have failed miserably. Naturally, the first to die in the enemy's country would have been those entrusted with spreading the plague. Euge wondered if the Dictator had found that out, and if so, what he thought about it.

Never acknowledged, but quickly apparent to the expectant Euge from certain veiled illusions, denials and instructions that came over the air, was the beginning spread of RM4, in its active and lethal form (the latent infection must be almost universal now), among the people of the Diktatura. In his head Euge kept a map, in which the increasing areas that the newscasts never mentioned were represented by creeping splotches of blackness. When he examined and revised it, he was wont to lean back with closed eyes, on his lips a faint smile that made his guards look uneasily at one another.

Immured, Euge had no means of

learning directly what spirit was abroad in the masses. But he could make shrewd deductions from the changing tones of the propaganda directed at them. Within the space of less than a month, it shifted from paeans of celebration for a quick and easy conquest to the harsh task of inspiring a fiercely realistic, do-or-die determination, to which Victory was once again a far wandering fire, beckoning out of storm and darkness ahead.

Realism went as far as an admission that the initial biological attack had failed to fulfill the hopes pinned on it. The plague had taken hold and spread slowly, but, on the bright side, it was doing its work now all the more thoroughly... There followed a map, showing the estimated extent of plague areas in the enemy lands, and an extrapolation by noted pathologists of the time that must pass, the time that must be endured with courage, fortitude and hard work, before the foe would be blotted from the face of the Earth.

Euge closed his eyes and made comparisons with his private map and with his extrapolations from it, and he smiled unpleasantly yet again.

He asked for and received a bundle of newspapers; it was among those there chanced to be an ill-printed pamphlet issued by the Witnesses of the Lord, which stated positively that, had the original experiments been correctly understood, it would have been plain at once that RM4 was the Judgment Virus, come to slay the wicked and spare the righteous, whose lintels were sprinkled with blood...

Euge read the pamphlet through with a sharp quickening of interest, but when he had finished he shook his head sadly.

• HE WAS BROUGHT before the Dictator for the last time.

The leader's eyes were sunken and spoke of sleepless nights. They rested on Euge with the cold impersonal enmity of a snake's.

"You lied to me," he stated flatly.

"No," denied the scientist. "I let you interpret the data in your own way. It is not my fault that you believed what you wanted to believe."

The Dictator strove visibly to say what he had planned. "I have recalled you, despite grave suspicions, to—to appeal for assistance. Perhaps you have had pacifist sentiments all along—" Euge made a scornful gesture. "In any case, it is no longer a question of making war. The enemy has practically ceased to fight, now it is the plague that must be conquered—"

"I imagine," said Euge softly, "that your statisticians have told you that RM4 will be pandemic in this country as soon as, or before, it is in the enemy's."

The other's mouth twitched. "You performed exhaustive experiments with the plague; you hold the key to its nature and possibly to a remedy."

"It is true that I learned something about the virus' *raison d'être*. Novik must have told you about it. There was nothing which pointed to a preventive, let alone a cure, at this stage. I am no immunologist, anyway."

"Novik said," the Dictator's eyes narrowed, "It is fear!"

Euge nodded with satisfaction. "He was right. The virus attacks only brains that are already sick with fear. Not—my results with mice indicated—the normal alarm of a healthy organism, which expresses itself in flight or fight, but the pathological anxiety-state that come of an inescapable threat or frustration in the environment, and that turns itself so easily into feelings of guilt or hatred... The fear of the criminal, the neurotic, the paranoid."

"Then all that is needed is to stamp out such elements, the focus of infection!"

Euge looked at him with open amusement. "You're welcome to try it. But remember—we are at war now. The psychology of the people is fear, like that of the criminal, the hunted hunter, the hated hater, perhaps the guilty... As long as there

was peace, the Diktatura gave most of us security, reasonable happiness, freedom from fear. The same is true of the enemy's government, however short it may have fallen of ours. But a nation at war is a nation afraid.

"And RM4 is a successful mutation," added Euge didactically. "It creates the thing it feeds on. One of the most basic fears in men or mice—the fear of one's own dead. Thanks to that, the plague is independent now of anything you do or leave undone."

The Dictator stared smolderingly. He spoke with bitter irony, "You awe me, doctor. You are a traitor to your country and to all mankind. Yet you seem to consider yourself justified."

Euge shrugged. "I am a scientist; I deal in questions of what can be done. It is left to you politicians to concern yourselves with what should be."

The Dictator choked, recognizing his own doctrine. "Irresponsibility—science!" His face flamed with finally unleashed passion. "If I survive this, I'll see to exterminating the whole breed of scientists!"

Euge studied him coolly. "You won't survive; you are afraid."

BENT OVER HIS DESK, the Dictator struggled to compose a speech to the people—one that would reassure, enhearten, inflame the blackening coals of hope.

He wrote: "There is nothing to fear but fear. A way will be found..." He scowled at the shaky hand-writing of the last line, scratched it out angrily and began again.

"A way will be found..." But his fingers twitched convulsively with the pen, and the sentence trailed into a senseless scrawl.

THE TRUCK SWUNG round and lurched to a halt not far from the road, and they saw that there would be no grave—only a stretch of wild, rank weeds in a wet meadow.

"So," said Joseph Euge in the same weary monotone, "there will be an end of man—unless somewhere on Earth are found men without fear."

He flinched from the prodding bayonet of a frightened man in a terrible mask, and stumbled stiffly to his feet.





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★ SCIENCE ★ in Science Fiction

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1. THE BIOLOGICAL STORY

A STATISTICAL survey of science-fiction to date would almost certainly show that physics and astronomy have provided themes for stories more often than have any other sciences. There was a brief period in the early history of the medium when chemistry was a popular source; lately it seems to have become less interesting to most writers, though as a science it has made enormous advances since the days of Miles J. Breuer.

Stories deriving their major ideas from that vast, disorderly conglomeration of sciences lumped under the general heading of "biology"—the sciences of life and life-processes—have been comparatively rare, even if one includes as "biological" such stories as Paul Ernst's "The Moon Weed," where the biology involved was 100% invented. Science fiction writers seem to gravitate toward the exact sciences, and no biological science can yet be described as exact, with the possible exception of physiology.

But there are still many fields of biology which have hardly been touched by science fiction writers. Before we discuss those fields, let's look at the biological sciences which

have been exploited, if only incompletely.

Believe it or not, the most popular branch of biology in science fiction is one of which 99% of science-fiction writers have never heard. It is called teratology, which means the study of extreme departures from the norm—in short, the study of monstrosities. Giant ant stories, giant amoeba stories, giant spider stories, stories of intelligent insects and miniature men and limbless babies—all the way out to Victor Endersby's "Disowned", the story of a man who fell upward—all these are essentially studies in the consequences of a perversion of normal biological form or behaviour.

From this point of view, the science of genetics—seemingly the most heavily exploited science in fiction since the arrival of nuclear fission—really has not been much explored. Most of our stories about "mutants" to date have not been stories based in genetics. They have, instead, assumed the appearance of a cataclysmic mutation, a monstrosity in the biological sense, and then have gone on to discuss the consequences of the change in the form or habits of the critter under dis-

cussion, with only a nod in the direction of genetics proper. They have been teratological stories.*

Stories which have used the mechanisms and specific knowledges of genetics are hard to find. Heinlein's "Beyond This Horizon" is the only major story I can summon to mind where genetics, specifically and as a science, provided an important mass of material. A. E. Van Vogt's "Slan" stands about halfway between teratology and genetics; the monstrosity angle provides all of the dramatic shocks of the story, but there is some sound genetic thinking there if you look for it.

Most other "mutant" stories would not suffer if the writer had assumed, as did Franz Kafka in "The Metamorphosis", that the monstrosity simply appeared and that no explanation was necessary; no genetics at all is ordinarily involved in such yarns. In addition, no science fiction writer has yet touched the division of genetics which deals with non-cataclysmic mutations; most writers think that all mutations are the result of cosmic rays, atomic bomb explosions, or other forces which directly affect the genes. Actually there is an entire field in genetics which involves no change in the genes at all, and there are stories galore in it for the man who wants to look the material over.

Most teratological stories, furthermore, collapse with a resounding crash if they are examined biologically. Giant ants and giant amoebae are pleasantly frightening fairy-tale concepts, but as scientific possibilities they are ridiculous. Even assuming that one could grow or otherwise produce a giant ant or amoeba, one would find that the resulting critter would be quite helpless and would die within a few short min-

utes; the structure of the amoeba, and of the ant, are not suitable to large size.

Medicine, certainly a most important member of the life sciences, provided some subjects for stories back in the Breuer days, and continues to crop up now and then. L. Ron Hubbard's "Old Doc Methuselah" stories, though action stories primarily, take medicine as their special subject; indeed, they usually deal with some specific medical problem, ordinarily a simple one. Dr. Joseph Winter has given us two stories recently dealing with his speciality, which is endocrinology; and Theodore Sturgeon's "Maturity" is an example of a really powerful story, mature in every sense of the word, based almost wholly upon endocrinology.

We might note also that Sturgeon's "Mewhu's Jet" is essentially a pediatric story. It takes the form of an exercise in teratology, but Mewhu's basic differences from normal human form turn out in the end to be less important to the story-line than the similarities between Mewhu's structure and those of the young human child.

• **AN INTEREST IN SPECIFIC** medical problems has been taken recently by such writers as Katherine MacLean and Ross Rocklynne. But the field still awaits really intensive exploitation. Statistically, most medical science-fiction stories so far fall into the class of "little journeys through the human body," such as those Joe Skidmore used to conduct with the aid of a battery of bibliographical references, none of which he seemed to have read.

Occasional stories are findable which make use of limited and rather obscure biological disciplines. Most of Stanley G. Weinbaum's remarkable yarns owe their force to a thorough study of the laws of ecology, the study of environments. Weinbaum's greatest gift is usually called his ability to handle talking animals convincingly, but in my opinion that ability was only a frac-

*I except Norman L. Knight's "Crisis in Utopia," which is a real genetic story, but one grounded in a field which is so new—tectogenesis, the direct, surgical manipulation of chromosomes—that scarcely anything is known about it. The precision involved in experimenting in this field seems still to be beyond most of our chromosome-mapping and microdissection techniques.

tion of a wider understanding: a gift for positing creatures which were in strict harmony with the environments to which Weinbaum assigned them, in accordance with known principles. Two stories of my own, "Sunken Universe", and "Surface Tension", were based on a small subdivision of ecology, called limnology, which is the study of the shore-line areas of bodies of fresh water. Most stories dealing with critters on other worlds—with the behaviour of imaginary animals native to posited environments—are ecological in intention, but such stories seldom reveal any acquaintance with ecology as a science.

A. E. Van Vogt has shown an interest in histology, which is the science of tissue-structure. Van Vogt's interest is primarily medical—that is, he concentrates on *human* tissue structure and variants of it—but now and then he has branched out into fields where the processes involved in building human tissues apply only in a very basic sense. He has also made good capital of recent research in physiology, particularly in a story called "The Rull". His novel, "The Changeling", is based upon a biological phenomenon so odd that none of the formal life sciences can claim it as their exclusive property: ecdysis, or regeneration.

After all these examples are listed, however—and there are many more that might be mentioned—the fact still remains that the life sciences are yet to be explored with real thoroughness by science-fiction writers. A really comprehensive list of the branches of biology which still await a knowledgeable writer would run on for pages.

Helminthology, the study of a small division of the world of worms, is a typical example. After bacteria, helminths are the second most numerous form of life on Earth. They inhabit the soil, the bodies of almost all animals, and both salt and fresh water, in such enormous numbers that our planet would retain most of its present contours if everything else on it were invisible. Two or three dozen new

species of them are discovered each year—all widely different structurally. A man who was really familiar with this small area of biology could draw at least three major stories from it.

• **F**OR A WRITER WITH A philosophical turn of mind, there is taxonomy, the study of the classification of living creatures, a study which draws upon every other branch of biology, without exception, and which has social overtones which are endless.

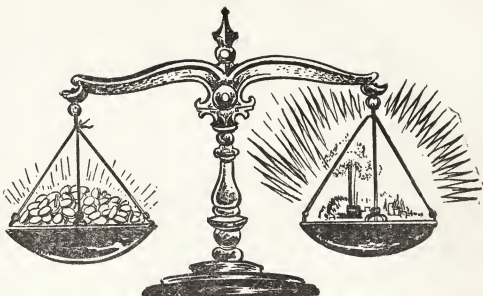
Some other possible source-sciences for biological stories:

- Bacteriology
- Immunology
- Pathology
- Protozoology
- Comparative Anatomy
- ✓ Phytology
- Mycology
- Cytology
- Biophysics
- Haematology

And many more. Many writers have used isolated facts from biology as story gimmicks, but stories rooted in biology are still very rare. The surface has barely been scratched, because biology as a science—or an assemblage of sciences—is yet to be explored with the precision and thoroughness with which such sciences as physics have been and are being explored.

Eventually, however, the life sciences should become as major a source for science fiction stories as astronomy long has been. It seems odd that the studies of life have been neglected by science fiction writers in favor of relativity and the behaviour of remote and invisible stars; but biology, like all other basic sciences, is full of disconcerting surprises, many of them as hard to bring to bear upon the conduct of our daily living as is the flight of galaxies.

Yet not all the wonders of the universe are millions of light years away; some of them sleep unsuspected in our blood.



ATOMIC BONANZA

by George O. Smith

THE VISITOR arriving at General Atomic Research climbed a broad flight of stairs and then encountered a sort of plaza presided over by a rare combination of brains and beauty. Here the visitor inspected the beauty while the brains inspected the visitor's credentials. After which mutual inspection the visitor stepped into the exact center of a long corridor and turned either to the right or to the left, depending upon which of the two main offices he was to visit.

At one end was the office of Doctor Howard Mangler, Director of Research; at the other end of the corridor was the office of Phillip Newton, Director of Operations. Between the two was the corridor called "The Battlefield" by the clerks, stenographers, and office boys.

Up and down the silent battle raged, its casualties mutely entombed in the filing cabinets, swathed in directives (with carbon copies) and counter-directives (with carbon copies).

It was not a bloody battle. It was fought with words and words and words of argument, counter-thrust, statement, rebuttal and rejoinder; espionage and security. The objective was Control.

For Howard Mangler objected most violently to having a "mere business man" running the delicate field of Operations, while Phillip Newton felt that physicists should stay in their white ivory tower and let business men run the details of business. Open battle did not join every day, sometimes it smouldered for weeks before breaking out in a welter of directives, memorandums,

A device which could decontaminate any bit of radioactive matter would be invaluable -- only it was impossible. But Doctor Velikof was ready to demonstrate just such a machine!

and hot words. But any long period of quiet brought a foreboding of imminent war to the office force; and when the first thrust was sent home, the force cleared its desk so that the passage of memorandums could flow untrammelled by the processes of work.

The rumor of war preceeded the opening of hostilities by long enough for preparation so that—

"Lillian, you'd better polish off that batch of invoices, quick-like."

"In a hurry?"

"We will be. Grant has just invaded Richmond."

"Oh."

Sometimes it was Shiloh, but when Grant invaded Richmond, it meant that Howard Mangler had stamped down the long corridor to blast his way through the defences of the outer office of Phillip Newton and into the inner sanctum itself—and was now firing his big guns in the enemy's face.

"This has got to go through!" roared Mangler.

"It is unnecessary."

"How would you know?" demanded Mangler.

"The inventory says we have twelve Tectrosopes now; what do we need with four more?"

"Because we have more men."

Newton snorted. "Does each man need a complete set of laboratory equipment?"

"Not a complete set. But a thing like this—"

"I've been through there recently and found no less than eight of them not even turned on, let alone being used."

• **M**ANGLER GRUNTED. "It's not the constant use that demands extra equipment. It's the fact that it takes time for a man to run down what he needs, borrow it, set it up, and then return it."

"You'll have to continue that way for a bit; we're over our budget now."

"By forty thousand?"

"Almost."

Mangler sat back with a derisive

gesture. "And I know why," he said with scorn.

"Indeed?"

"I do. You've sent through an appropriation for fifty thousand for your own fool—"

"I'm no fool, Mangler!"

"You are."

"If so, you are an opinionated idiot!"

"My opinion is quite valid."

"In your own opinion, your own opinion is valid. Stop defining 'A' in terms of 'A', Mangler; if I did that you'd be the first to scorn my definitions."

"What in the devil do you know about atomics anyway?"

"Only what you've taught me; if I'm a fool, it's your fault. What do you know about business?"

"Enough to make a time study and add up to four. Enough to balance the price of equipment against the lost man-hours because of the lack of it, and come up with a mathematical decision."

"But an eminently impractical decision; blood cannot be extracted from a radish."

"No, but you can dig up a bunch of radishes, sell them, and buy a pint of blood."

"That takes time. Just wait. As soon as we catch up with our budget—"

"If you hadn't sent through that appropriation—"

"I have that right."

"For what?"

"A device that, first, is needed right in our laboratory and, second, will eventually bring in millions once it is developed in large size."

"And may I ask the nature of this marvelous instrument?"

"Mangler, what would be the ultimate worth of a device that can extract the radioactivity of—"

"Worth billions, but it can't be—"

"Exactly. Such a device would be worth billions."

"Trillions. Any number you want. It just ain't practical. In words of one syllable that even you can understand such a process does not exist—nor can such a device be made."

"This decision of yours is, I gather, final?"

"It is no decision of mine. It is the opinion of every scientist worthy of the name."

"Who, of course, know all there is to know?" sneered Newton.

"Extracting the radioactivity from a radioactive substance is impossible."

"Come, now, Doctor Mangler. There were learned gentlemen who proved conclusively that no vehicle heavier than air could ever get off the ground under its own power."

"Granted. Using the same mathematics it is possible to prove that the bumblebee is aerodynamically impossible. The half-life of a radioelement is set by the nuclear structure of the element. What you are stating is that the half-life of any radioelement can be cut down—"

"Not at all. I'm stating that I intend to purchase a machine that will completely remove radioactivity regardless of half life."

MANGLERS SNEERED. "Tell me, Newton, if you were to put a lump of radium before this machine, would it turn out to be stable radium—or convert itself all the way down the radioactive ladder to inert lead in the same instant?"

"This is the sort of hypothetical question you always enjoy tossing around, Mangler. I suggest that you procure a half pound or so of radium and we'll try it."

"Then you have only rumor to go on?"

"Look, Mangler, let's make a premise or two. You'll not deny that I know what a Geiger counter is, and how it is used?"

"I'll grant that."

"All right then. Now, I've been shown a machine and a sample of radioactive material. I've been permitted to test this radioactive sample extensively. In fact I had it here for a few hours, using our own test equipment and it was definitely radioactive. This is established to your satisfaction?"

"Go on."

"Then this sample was placed in the machine and within a matter of a minute or so the sample was returned to me, inert and cold."

"May I ask whether there might have been a substitution of sample?" asked Mangler with a sneer.

"No, there was not. I have it here," and Newton tossed a lump of stuff on the desk.

"Carnotite ore," said Mangler picking it up and looking at it through a jeweler's loupe that he took from his vest pocket. "Or at least what appears to be."

"I put my own mark on it," said Newton complacently.

Mangler eyed Newton coldly. He started to say something but stopped before he began.

Newton smiled serenely and went on: "This is merely a pilot model," he said. "With a bit of development, the device can be made to work on a large scale. We can decontaminate our by-products; we can render safe any radioactive area. Why, the value of machinery we toss out every month will pay for it in a short time. Time and time again something in the hot-cave breaks down. Last week it was five hundred dollars worth of analytical balance, discarded because of a broken bearing worth about a dollar and a half. It wouldn't work right, and it was so hot that no one could repair it safely. Think of it!"

"As you said before, such a machine would be worth billions. But no such machine can possibly exist."

"You're certain of this?"

"Of course I'm certain."

"Which means, naturally, that you know all there is to know."

"I know what is the common knowledge of the topmost scientists of the world."

"Including the recent discoveries of the men who work behind the iron curtain?"

"Russia has no corner on brains."

"Nor have we; just remember that."

"So this miraculous gadget came from Russia?"

"It did."

"Indeed!"

"Don't scoff. Doctor Velikof escaped with his life."

"And the machine, of course."

"Yes. He stole the pilot model and escaped."

"Go on, Newton." Mangler's use of Phillip Newton's last name was scornful; a sore spot frequently rubbed raw. Mangler used it in this same scornful tone whenever Newton tried to invade the premises of science. Mangler's tone inferred that Newton was identifying himself with Sir Isaac Newton; it was on the same level of ridicule as calling a bald man 'Curly'.

• **DOCTOR VELIKOF** wanted out. He escaped with no more than his clothing and the machine—it fits into a small metal cabinet—because he knew that it would bring him enough money here to permit his comfortable escape and ultimate freedom. Even now he is not free from danger because the Soviet agents are everywhere, and doubtless most of them are on the lookout for him.

"Naturally," nodded Mangler in a soft voice.

"He came to me because he knew I was investigated and cleared for secret data by the Government and therefore could have no connection with the Soviet. He was extremely cautious at first, but he's relaxed since. Why, it was at least three weeks before he would show me his machine."

"Which you swallowed, hook, line, and sinker."

"But not without careful investigation."

"Such as?"

"I've seen it work!" snapped Newton.

"This I'd like to see myself."

"I'd take you along tomorrow excepting for one thing."

"Tomorrow?"

"I'm giving Doctor Velikof the voucher and taking possession of the machine tomorrow morning at ten ack emma."

"And your objections?"

"You'd foul up the deal."

"How?"

"Like most of your ilk, you'd want to spend a few years investigating the properties of the machine. You'd have someone make a mathematical analysis of the process, want to test it on this and that, and then you'd priff around for six more months before you decided whether to pay off now or a year from now. In the meantime Doctor Velikof would be in great danger, if not dead by then."

"And if I promise not to interfere?"

"Under those circumstances—"

Mangler eyed Newton calculatingly. "Will you put in writing a statement that you are inviting me to witness this affair under the single provision that I interfere in no way, shape, or fashion with your business deal with this Doctor Velikof?"

"I'll be most happy to."

"Good," said Mangler with a smile. "This will be double protection; if I interfere and louse up the deal, you'll be able to clip me. If I don't bother to keep you out of a sucker's bait, you won't be able to blame your mistake on my silence."

"That's a deal."

"Deal," said Mangler.

Mangler turned and left the office. His passage along the corridor was followed by the eyes of the office force, and when Newton called for his secretary to come in for dictation, there was a general cleaning of desks. The primary cause for another mild paper shortage was expected to arise at any moment now.

• **NEWTON RAPPED AT THE** hotel door and the door opened after a minute. It opened a mere crack first, then it swung wide as Doctor Velikof saw Phillip Newton. "Come in," he said in a rather thick accent. Then he saw Mangler and frowned. He started to swing the door shut; he looked at Newton with a half-trapped expression which

was as though he felt that a trusted friend had betrayed him.

"Don't worry," said Newton cheerfully; "this is Doctor Howard Mangler."

"How do you do?" inquired the Russian uncertainly.

"Fine, thank you," responded Mangler.

"Doctor Mangler is safe; I can—"

"Now that I know his name I know," said Doctor Velikof. "He works with you."

"That's right."

"However, I'd have preferred it otherwise. Yet he is here," said Velikof in a resigned tone.

"You can be sure that your secret is safe with him."

"This I am sure of," nodded the Russian quickly. "Yet the best of intentions sometimes—you understand? I have no lack of faith in you, Doctor Mangler; in fact I'd have been most happy to meet you under other circumstances. But like most questions of security, the safest secret is one which is not labelled secret, and which is known only to the absolute minority."

Mangler nodded. "I know very well how this thing can affect you. Have no fear; I'm here only as a curious physicist who wants to see the first machine in operation—a machine that apparently does what cannot be done."

"I'll be glad to show it to you," said Velikof smoothly. To Newton he said: "Everything is ready?"

"Of course," nodded Newton. He reached into an inside pocket and produced an envelope which he handed to Velikof. "Sorry that it must be in certified check, Doctor Velikof."

"I understand; it is as sound as cash."

"I assure you it is."

Velikof nodded and then looked at Mangler. "You are skeptical," he said sincerely. "But only because you do not understand."

Mangler nodded cynically. "According to what is known about

radioactivity, you are about to violate something of a universal law."

Velikof shook his head. "Universal laws cannot be violated. When a universal law obstructs scientific achievement, the thing to do is to work it so that the universal law can be turned around to operate in your favor."

"And," said Mangler pointedly, "one can sometimes evade the law for a period of time during which one can get away with some amazing things. But always the law catches up with one."

"You do not believe—?"

"Frankly, no. But I'm willing to be shown."

"Then come!" and Velikof led the two Americans from the reception room of the hotel suite to the bedroom. "There it is," he said proudly.

•THERE IT WAS, MANGLER eyed the set-up critically. Scientist, experimenter, and practical engineer, Mangler looked the equipment over with his experienced eye. The stuff had been set up on one of the long portable tables used by hotels to furnish display tables in conventions and the like; and the construction of the table precluded any under-cover fancywork. Smooth but bare boards were set upon sturdy horses; a single line-cord led from a wall socket to a small metal case studded with convenience outlets in which several A.C. operated gadgets were plugged. Standard as could be.

At one end of the table was a rather expensive analytical balance. Next to it was a volumetric graduate and system to measure the true volume of an irregular solid to a remarkable degree of precision. Not content to use these pieces for the purpose, the third equipment on the table was a simple but accurate equipment for measuring the specific gravity of solids. There was a spectrometer and its associated gear, the use of which could give an extremely close estimate of the composition of a sample. A small silver

taken from a larger sample could be tested and from the proportion of sample to sliver, the elemental structure of the larger sample could be obtained. Some electrical equipment came next, specific resistivity, magnetic moment, dielectric constant, piezo-electric axes.

"We do not use them all on every sample," said Velikof. "One could hardly measure the dielectric constant of a block of radiosilver, for instance."

"But silver—like all metals—still has a dielectric constant."

"Of course. And a block of copper has an index of refraction. These are scientific measurements and concepts and not practical for this purpose; here we work in the concrete and not the abstract."

Mangler shrugged. The next bits of equipment he recognized; one was a counting-rate meter that had the nameplate of a popular manufacturer of scientific equipment. Next to it was a portable Geiger counter, which had the inventory-plate of General Atomic Research screwed to the panel.

"That's here on lend-lease," said Newton cheerfully.

Mangler nodded again. From what he could see, Velikof's equipment was beyond reproach. Used under the eyes of Newton, nothing short of a hidden cyclotron could create a false impression of radioactivity in an inert sample. Used in front of Mangler, not even a hidden cyclotron could be used to falsify any evidence.

But it was the final item on the board that interested Mangler. It was a small, leatherette-covered case with a suitcase handle on one side. It had a panel across the face which was covered with dials etched in Russian characters. Below the characters indicating the function of the several dials, someone (either Velikof or Newton) had used a grease-pencil to letter in the English equivalent, of mass, of volume, of the various factors that are the

measurements of matter. And the bottom row of dials could be set to the activity-constant of radioactive emanations, alpha, beta, and gamma.

● **T**HE CASE CAME OPEN IN the middle; this control panel and its insides filled one half of the split case. The other half was open behind it, and it was obvious that the equipment standing next to the control panel fitted neatly into the open half of the carrying case.

The base of this equipment was a larger cylinder made up of an electromagnet. The core was laminated, the ends of the laminations showed across the flat dome of the cylinder. The coil of wire came up even with the top of the laminations so that little of the surface of the cylinder could be seen. The bottom was a flat circle of metal large enough to extend beyond the coil; it made a neat base. Rising from the metal base were three metal struts that passed up (almost touching the outside of the electromagnet) to a superstructure above the flat face of the laminated core of the magnet. It was obvious that the sample would rest on this flat face.

The three struts held a spiral of glass tubing that was terminated in electrodes similar to the terminals of a neon sign tubing; these were connected to the cable that led from the gear to the control box. Atop the glass spiral was a flat circle of aluminum.

"Radioactivity is a state of instability in the nucleus," explained Velikof.

Mangler nodded. Velikof had said nothing that could not be obtained from a fundamental book on atomics, circa 1935.

"The condition known as half-life obtains because of the statistical nature of atomic structure. Any single atom is not radioactive; it is only in an instable state in which it contains more than enough energy to hold it together. When it ejects

SCIENCE FICTION QUARTERLY

this excess energy, it is radioactive only for that instant. Then it becomes a stable nucleus. But when a statistical quantity of such atoms are present—and any gross matter no matter how minute will contain a statistical quantity—there is always some number of atoms in the radioactive state of ejecting the excess energy. Some do it quickly; others take their time.

"In order to remove the excess energy all at once it is necessary to control the nuclear particles themselves."

"Which—up to now—has not been done," suggested Mangler.

"Right," beamed Velikof. "An instable atom can be considered as a billiard table with the balls in motion. The stable state consists of the balls at rest. In the radioactive atom, the balls contain a total excess energy sufficient to drive any one of the balls from the table but this excess energy is divided among them. Until the random motion of the components and the attendant transfer of energy from one to the other results in one component eventually containing this excess energy all to itself, nothing happens. Then, when this does happen, the ball has enough energy to leave the place—in other words, the particle is ejected."

"Fundamental," said Mangler. "But how do you control the nuclear particles with this equipment?"

"By inserting the radioactive sample in fields which work on the electrostatic, the momentomagnetic, and the mechanogravitic properties of the nucleus."

"This I've got to see," said Mangler.

• **VELIKOF NODDED.** FROM a heavy metal case he took a small lump of stuff that looked like a piece of ore. He handed the long tongs to Mangler, who viewed the sample from a safe distance through a piece of leaded glass conveniently placed on the table.

"You expect trickery," said Velikof. His tone suggested that he was

unhappy that Mangler did not believe him. "Mark it if you like."

"I'd like to, but I'd rather not get that close to hot stuff."

"Then inspect it carefully and note anything characteristic about its structure. That way you can be sure."

"Just put the show on the road," said Mangler.

"All right."

Velikof tested the sample before the Geiger and the counting rate meter. From readings obtained, he set the dials on the control box. Then Velikof spent many minutes weighing, measuring, and testing the sample, transferring mass, volume, and so forth to the proper dials on the box. He re-tested the sample before the counters and rechecked his dial-settings, which he did not have to change.

"You will notice that the radioactivity has not diminished in the half-hour I've used to measure the sample," said Velikof.

Mangler chuckled. "The intensity there," he said with a wave at the counters, "is such that any short-term half life radioactive you could get would have started off hotter than Oak Ridge itself. Go ahead."

Velikof lifted the top aluminum plate and set the sample on the laminated end of the electromagnet. With the top plate back in place, the sample could be seen through the coils of the glass spiral.

"Now!" said Velikof sharply. He thrust in a small switch on the instrument panel.

There came a faint sizzle of corona and the top circular plate showed a few leakage-spikes from some sharp edges. There was a general, but very gentle tugging at iron-containing items in the pockets; the sample moved a bit.

A meter moved swiftly up the scale towards a red line and as it reached the line, the coils of glass flared with blinding brilliance and a faint, metallic "Ting!" rang from the equipment.

Velikof laughed. "I know best of all that we should not look at it,"

he said; "but even I cannot avoid it."

Mangler looked towards the ceiling. There was a spiral image that moved with his eyes, a scintillating retained impression that changed in color from flaming green to beautiful blue to blood red, then white, then blue, then green again. It faded slowly; it appeared in changing color behind the closed eyelids, it became bright again and died again and faded away to return. Looking at the sample, the retained color in the eye-image matched the equipment and registered with the glass spiral and made it look as though it were still glowing.

Velikof lifted the top plate and took the sample out with his bare hands. He handed it to Mangler and said: "Test it!"

It was dead.

MANGLER LOOKED AT IT, then looked at the equipment. "This I've got to inspect," he said in a low voice.

Velikof smiled. "Now you believe." "I'd never believe it possible."

Newton smiled self-confidently. "We'll have plenty of time to see what makes it tick," he said.

"But where does the activity go?" asked Mangler.

"It is changed into harmless radiations of mere light, a bit of electrostatic discharge, and a burst of magnetic field," said Velikof. "All energy has an equivalent wavelength; by inserting the proper equivalent wavelength artificially and exciting the material properly, the energetic radiation is heterodyned into harmless energy which can be dissipated easily."

"Amazing! Have you another sample?"

"No, unfortunately. Radioisotopes cost money. Why?"

"I'd like to try it again."

"You may do it at your laboratory. This machine is now yours."

"Then let's take it out of here—quick! I've got work to do!"

Newton smiled. "We'd like another check-out on the process," he said.

"Well, we can go through the

mere motions," said Velikof slowly.

"Oh, no," said Newton. "I've a sample here with me."

"With you?" exploded Mangler. "That's dangerous, you idiot."

"Not at all," smiled Newton taking a small flat case from his pocket. It was heavy; lead. He pried it open on the table with a long screwdriver and lifted a small sample out of the case with the tongs. "Now we can do it again," he said happily.

The counters chattered happily as Newton held the sample in front of the probes.

Velikof looked at his watch. "Would you like to try it?" he asked nervously. "The banks close at noon today, you know."

"You have a half-hour. Then, there's always tomorrow."

Velikof shook his head. "Tomorrow I must be gone," he said; "there are men who would kill me for what I've done."

Newton smiled. "You have a good half hour. I'd like some instructions. Please?"

Velikof nodded. "You do it," he said. "But please hurry."

"The measurements take time."

"I know. But—well, go ahead."

Newton nodded and put the sample on the scales. His hands fumbled a bit and he started over—

"Please hurry."

"I guess that's close enough," said Newton. He set the mass dial, looked at it, looked back at the balance, then shrugged. He dunked the sample in the volumetric graduate, flashed it through the electrical bridges, and made the appropriate settings on the dials of the control box.

"You're being rather sloppy," said Mangler pointedly.

"I fear he has been too sloppy," said Velikof. "But we have too little time to repeat."

"You set the radioactive constants," said Newton to Mangler. Mangler thought for a moment and then set them; and his setting was precise.

"Now!" said Newton. He thrust the switch home.

• **A** GAIN CAME THE BRIEF sizzle of corona, the urge of magnetic attraction, and then the blinding flare of light.

Newton reached for the sample.

"No!" said Velikof quickly.

"Why?"

Mangler grunted. "You've been as sloppy as a kid," he sneered. "That sample is probably as hot as it was."

"But you have the right process," said Velikof. "And now I must get going."

Shrugging, Newton took up the tongs, lifted the sample from its place, and thrust it in front of the counter.

The counter was silent.

"Dead!" glowed Newton.

"Hmmm."

Velikof turned back from the door. "Dead?" he said. "Dead?"

"Dead," said Newton. "I couldn't have been as sloppy as you accused me of being."

"Maybe the thing isn't as demanding as you suggest," said Mangler.

"We'll find out," said Newton; "Howard, help me pack up."

"Sure."

Velikof shook his head. He handed the envelope back to Newton.

Newton took it, wonderingly. "Why?"

"I'm not selling," said Velikof.

"But you did sell. It's mine—ours."

"You took your envelope back."

Mangler growled. "Not if I have anything to say about it!"

Velikof eyed Mangler, looked the big man up and down. "But this isn't—"

Mangler flexed his hands. "You can't play that game with us," he snarled. "What do you want—more money?"

"I want my machine. It has just occurred to me that I know how to exploit it for myself, in safety from my countrymen."

"Well, you can't back out of a contract that easily."

• **THIS IS A MATTER OF** business," Newton said softly, as he waved Mangler aside. "Which comes under my jurisdiction. I'll handle it."

"All right, but don't let him get away with that machine."

"Business is business," smiled Newton. Then to Velikof, he said: "Business is one of the things we Americans specialize in, you know."

"I see," said Velikof; "you want a profit."

"We want the machine!"

"This is my job, Howard." Newton nodded at Velikof. "Make me an offer."

"You have your original fifty thousand; I'll buy the machine back for ten thousand."

"No."

"Twenty."

"No."

"Twenty-five."

"Hmm."

"Look, Newton, this is worth a lot more than that."

"Thirty."

"Make it fifty."

"Done!"

"Cash!"

Velikof went to the dresser drawer and took out a sheaf of bills. He counted off fifty of them and handed them to Newton. "Now get out!" he snapped.

"Oh, come now, let's be friends."

"So that he can see my machine and copy it? No!"

"Come on, Mangler. Let's go."

Newton led Mangler from the room. The elevator that came for them also dropped six policemen who hurried up the hall. They were rapping on the door as the elevator door closed.

"You're an imbecile," snapped Mangler. "I know what you're thinking; that I could reproduce that machine. But I can't. I can't. And you've sold it back for a measley fifty thousand. You're an imbecile. It's worth millions."

"No, just fifty thousand," said Newton, waving his envelope.

"But Velikof will make millions—"

"He may have," chuckled Newton, "but not any more; the gentlemen in uniform will see to that."

"What do you mean?"

"Mangler, I bow to your knowledge in matters scientific, but the Commission put me in charge of

business because you are incredibly naive. A few years ago they were selling little doohickeys that printed dollar bills. Ten days after Hiroshima, there were advertisements for everything from atomic permanent waves to atomic patent pills. Develop something new, and there will be ten sharpeners making sucker-money out of it."

"But what happened?"

Newton chuckled. "First, Velikof, who is a charlatan of the first water, demonstrated a machine to me. I, a simple business man, was duly impressed by the wonders of science. I agreed to buy this fabulous gadget for fifty grand.

"Then," he continued cheerfully, "I mentioned it to you. You jeered, and then finally went along with the gag so that you'd have the splendid opportunity of watching me get clipped.

"And then again," he went on even more cheerfully, "the man who knew it wouldn't work in the first place was convinced by a bit of sleight-of-hand. There, Mangler, you did a fine job for me."

Mangler growled. "Yeah—? How?"

"By acting your natural self: The brainy physicist being convinced by a gadget. You convinced the charlatan that he had something."

"But—"

• **NEWTON GRINNED.** "Mangler, you should know by now that cylindrical magnet cores are never made of laminations because it is just as efficient to make a square core out of laminations. Turning a laminated core is an unnecessary nuisance."

"Yes."

"So I figured that the only reason

for making a laminated, cylindrical core was to conceal some minute crack—the sort of crack that would be visible on a smooth surface. The sort of crack made by a pair of cunning trap doors. Two samples, elaborately sculpted into remarkable similarity, one radioactive and one dead. God knows how many times Velikof has done this bit of legerdemain at fifty Gee a clip. Safe, too, because no man would care to handle the hot sample close enough to mark it. The flare of photostrobe light to blind the eyes, the elaborate preparations, and all the rest. And so, the gent who was going to watch me get clipped fell for the job itself!"

Newton roared with laughter.

"But—"

"Oh," said Newton cheerfully, "even you don't get it?"

"No."

"Simple. Y'see, I had to make a profit. I used a few thousand dollars worth of radon gas. Radon gas and beryllium produce lots and lots of neutrons. Neutrons can bombard elements; I had one of your boys prepare one of the short-term elements for me and put it in my little lead box. One of the five-minute half lives that would activate the counters and then die out in the half hour it took to run through the measurements. By being sloppy in my analysis, I convinced Velikof that his equipment could be made to actually work if he figured out *how wrong to set his dials!*"

Newton waved the envelope at Mangler. "So from here on, you stay at your end of the hall and run the gadgets, and I'll stay at my end and run the business. And if you are a good gadgeteer, I'll put through your request—not order—for tectroscopes. I guess we can afford it, now."





TURN BACKWARD O TIME!

by Walter Kubilius

"**A** DEL W. CRANE, C.D." Donovan held the Identification-plast in his hands, the fingers trembling slightly. "What do the letters 'C.D.' stand for?" he asked, determined to play the part of an honest citizen who had no interest in unlicensed rejuvenation or time travel.

The chalk-faced young man with the fixed smile told him: "Cyclic Detection. You may have heard our more dramatic nickname, Criminal Destroyers; I've been an agent since 2452."

High-strung Donovan moistened his lips. Of course he had heard of the C.D. In an age when cyclic travel backward through the centuries was an established science, the Komitet that governed the Home Planet had to employ ruthless measures to cope with any experimenters whose uncontrolled work might threaten to change past temporal cycles. The C.D. were the scavengers of the World Komitet; they scoured the past centuries eliminating illegal and unlicensed cyclic travellers. In a rigidly-controlled solar system

The one hope for Donovan was to escape into the past, become a citizen of the early 20th Century. But he overlooked the aftermath...

there were thousands of law-breakers, political disappointees, and even youth-seekers like Donovan, who hoped for life-extensions in past ages. The C.D., with terror and all the resources of the solar system, hunted them down and exterminated them. Quietly, ruthlessly, and painfully.

"The criminal Blascomb," Crane said, the fixed smile still on the thin lips, "has been observed near the Donovan metallurgical plants. The Komitet suspects that someone close to your office may have established contact with him for illegal rejuvenation."

His eyes left Donovan's taut face and scanned the office walls. Control boards recording operations in extra-terrestrial metallin plants lined two sides of the office. The only break in the sternness of the walls was an antique painting, a still-life abstraction that must have dated way back to the 20th century. Crane stared at its flashes of color, the fixed smile turning to amused contempt.

Donovan dared not ask for additional details. The word or whim of the Komitet was law. Criminal Destroyer! Donovan shuddered; he had spent the past six months in quietly transferring ownership of the Trust to various fronts for Blascomb. A fortune worth several erg-units squared to the 6th power had already changed hands. Had the C.D. caught him before Blascomb could deliver on the rejuvenation and time-escape deal?

"We have nothing to hide," Donovan said, "my staff will cooperate with the C.D. I assume you want access to the psycho-record files?"

Edel W. Crane, contemptuous eyes turning away from the still-life, reached a bony hand for the approval slip.

"I will let you know what I find."

• **DONOVAN STOOD UP**, and when the C.D. agent left he frantically sent out a conscious call to Blascomb's thought-frequency number.

"By the Komitet!" Blascomb's

wave-induced voice rang in Donovan's ears, "I told you never to call me unless it was most urgent."

"This is urgent," Donovan thought desperately, "Crane, a C.D. agent, was here a minute ago. He's going to look over the books of the Trust."

"He won't find a thing," Blascomb's thoughts were confident in Donovan's mind, "They haven't caught a single one of the men I've sent back into the 17th century; just be patient and we'll cyclic you out within a week."

"Then hurry. My heart's in bad shape and I can't last much longer. I'm practically being kept alive by that rotten Callistan serum."

"Stay alive for one more week," Blascomb thought encouragingly, "and you'll be young for centuries."

Turn backward, turn backward, O Time in thy flight! The song sped through Donovan's mind, lifting his spirits. To be young again, and to be free from the constant supervision and threat of the terrifying C.D.!

"As for Crane," Blascomb went on, "It's part of the service I'm giving you. We've arranged a false-lead case in your office. Crane has his talons set for your brother-in-law. Shortly before the C.D. annihilates him your escape will be arranged to throw suspicion upon him. We will make it seem that your brother-in-law killed you for denouncing him to the C.D. Crane will never see through the subterfuge; you'll be safe—perhaps forever."

His brother-in-law's life was a cheap price to pay for youth. Donovan stared at his stiff, corpse-like hands. All he needed was one more week. He would make one more effort to secure a Life-Extension—and then...

• **THE EXAMINER FOR THE** Board of Life waited while Donovan dressed. The answer could already be seen in the official's eyes.

"No?"

"I'm sorry," the Examiner said, "but the laws of the Komitet are fairly stringent. Only those whose

social value is above Par 195 may be rejuvenated. Not much value is placed upon engineers and Trust managers who can easily be replaced from each year's Birth Quota. The application is denied, and there's no use appealing it."

"It's unjust!" Donovan exclaimed, ignoring the alarming pain in his failing heart, "All I want is ten more years—not even a full return to youth! If there's no room on Home Planet, let me go the extra-terrestrials or even some asteroid. I'll make any contribution required to..."

The Examiner, who had often heard such vain pleas, rapped his desk with the blood-analyscope. "The Komitet is far too wise to permit socially unnecessary extensions of the life span, just as it does not permit unlicensed time travel. What would happen if we allowed you to be rejuvenated, and then permitted extra-terrestrial emigration? There would be millions of old or sick people like you demanding equal treatment and equal consideration. Before long the planets and asteroids would be overpopulated and independent colonies set up thereon which would eventually come in conflict with the Home Planet Komitet. No, my friend, the Komitet is wise in decreeing that rejuvenation and human birth are mutually contradictory. Rather than sacrifice birth, with the consequent stagnation of the human species, the Komitet has decided rigidly to control youth-extensions, and grants those periods of additional life only to the socially valuable."

"Yes," Donovan said bitterly, "the Komitet keeps itself immortal while the rest of us have to die."

The Examiner's voice was hard. "Shall I denounce you to the C.D.?"

"I beg forgiveness," Donovan said; "your decision is a just one and I shall make no appeal."

• **BLASCOMB** HAD A VERY persistent thought-call. Donovan relaxed in the office chair and let his consciousness-levels sink to the call-number.

"This is the moment," the thought patterns registered. "The C.D. is about to close in with the faked evidence we've prepared. Your brother-in-law's about to call. Trust in me; all is ready. Do not become frightened, for excessive adrenalin might upset the required endocrine balance."

Before he could frame a reply, Blascomb's thought faded away. The office door slid open and Edel W. Crane walked in. Donovan's heart throbbed painfully: was this an unexpected crisis in their plans, or had Blascomb prepared even this?

"The C.D.'s finished its analysis," Crane said, "I thought you might be interested."

"Naturally, I—"

"The case was very simple. I wish citizens would realize that they cannot fight against the enormous resources of the C.D. We will destroy—"

The public-screen flashed urgently. Donovan excused himself and turned the knob. His brother-in-law's angry face switched into view.

"Donovan! That was a dirty rotten thing to do. What right did you have to denounce me to the C.D.? I should kill you for this!"

Donovan's bewilderment was genuine. He felt Crane's eyes upon him, and a thrill of admiration for Blascomb's genius suddenly swept through him.

"What do you want?" he managed to say.

"I've got to see you immediately. I'm downstairs, in back of the pilocab station."

"Later—"

"Now!"

The image snapped off. Donovan turned to the C.D. agent. "Scuse me for a moment," he stammered, "some family trouble. I'll be back in a short while."

Crane glanced up. "I'll wait."

Donovan walked through his office, conscious that he was doing this for the last time. Rejuvenation was like death. You put an end to a lifetime casually and without haste.

At the pilocab station, the wind cutting down from the whirr of

swooping cabs, Donovan met Blascomb. There were two bright flashes, and then the smell of disintegrated flesh. Blascomb gestured toward two graying pools on the plastitized floor in back of them.

"Murder and suicide," he said, obviously pleased with himself, "The C.D. will think you are dead. The murderer's body is also there to provide a motive for the transfer of the Trust's funds in the event Crane becomes too thorough. He'll be here soon; we work fast now."

THE SPECIAL PILO-CAB dropped them into a gravity-shielded warehouse above the European Desert. It housed Blascomb's laboratory. The rejuvenation process was even simpler than Donovan had expected.

"Not the Fountain of Youth, exactly," Blascomb explained as he plunged in the needle, "but a selective antibody that attacks only aging tissue and forces replacements practically on an embryonic level of activity. Unlike the Callistan serum, which is merely a stimulant, this antibody creates from its destroyed tissue a catalyst capable of stimulating chromosomes and genes. By the very process of feeding upon itself, the body grows younger. The net result is a reversal of the life process, an anabolism making you grow younger, year by year."

"Eventually to disappear as a single cell?"

"Ultimately, yes. Long before that period, probably when you're a young man, you'll have to return to 2482 for a reversion to normal metabolism."

"The process can be repeated?"

"Indefinitely."

Donovan breathed deeply. "Immortality!"

Blascomb did not smile. "Only if the C.D. does not find you. Unlicensed rejuvenation is punishable by execution in an extremely painful manner. You're a doomed man now if the C.D. even finds you. The worst tortures of the Middle Ages would be nothing compared to what Crane would do to you or me if he tracks us down."

"You can stay in the present time-cycle," Donovan said, "but I'm tired of control and supervision. Send me to some period where an individual had a chance to work and live without state control. Give me the times of individualism!"

"C.D. agents are everywhere in the time-cycles, tracking down illegal immigrants. Quite a number of the men I've rejuvenated chose the Renaissance for escape, but I'm afraid that a good part of that cycle's carnage was the work of such C.D. agents as our friend Crane. I'd recommend another period."

"The Golden Age of Greece?"

Blascomb shook his head. "Already taken. Aristotlè, Plato, and a few others are 25th century men. Archimedes was murdered by a C.D. agent, and Socrates sent to his death by a group of them."

"Their fates were known to history—why did those men leave the 25th century to live in that cycle?"

He shrugged his shoulders. "They probably felt that the few years of extra life were worth it. Well, into what period do you want to go and what would you do there?"

"I do not understand the paradoxes," Donovan said, "What if I chose to build gravity-deflectors in Ancient Rome?"

"It would be impossible because there were no such manufacturers then. It would mean that you were either promptly killed by a C. D. agent who recognized the anachronistic attempt, or you had changed your mind."

"But if I can choose any period, it means that I can alter history at will—which presumes that the present can also be changed."

"That is what the Komitet believes, and that is why the C.D. is so ruthless and brutal with unlicensed time travellers. The real answer is that in the final analysis your decision to choose a certain time period is already made, and the things you will do are already determined. Free will is an illusion; it is synonymous with incomplete perception."

"Then send me into the 20th cen-

tury. As an engineer I would be able to make some sort of living there."

"Dangerous. Don't practice your profession. Study some field which is completely alien to you so that should you come across a C.D. agent he would not recognize the work of a 25th century man."

"You mean like an artist or a writer?"

"Why not?"

Donovan laughed. "I've never held a paint brush or written more than a one-page letter, but why not? Unloose the cyclic band, Blascomb; set me loose in the 20th century, and give my regards to the C.D."

• IN THE DIMLY LIGHTED

garret above the tavern, Donovan stood before his easel. His face was no longer lined, for the past twenty-five years had made him a much younger man. He had taken Blascomb's advice and had studied a field completely alien to him. In his own time, the 25th century, his paintings would have been considered laughably amateurish, but for 1926 they were infinitely superior to anything produced by 20th century artists.

"Why can't they see?" he asked his agent angrily, when his third show passed without the sale of a single painting.

"I can see them," the agent said, standing in front of a still-life abstraction with flashes of color, "but your way of working is too far advanced for our time. Believe me, a few hundred years from now your paintings will be regarded as the work of a great genius."

"In the meantime, I starve."

"I can help you."

Donovan threw down the paint brushes. "No. No. There's no use being ahead of one's time. I can't make a living as an artist. I may as well go back to digging ditches."

"Maybe you can work part-time and paint at night. What did you do before you started painting?"

He hesitated, but what was there to be afraid of? "I—I was an engineer."

"I can get you a job with a construction company."

"No. No! I want nothing whatever to do with engineering! Nothing!"

In the 25 years that he had lived in the 20th century he had turned from a man of 65 to a healthy, robust 40. For a long time he had lived in fear that the dreaded arms of the C.D. would reach out for him, and that he would stand face to face with terror-inspiring Crane. But he had never met anyone who seemed to be a C.D., a Criminal Destroyer. Sometimes he felt the avenging sword of the Komitet hanging over his head.

There were some statesmen and philosophers mentioned in the newspapers whose ideas seemed to indicate a 25th century origin, but he avoided them in the fear that they might be plants to draw out the illegals. It was probably that the C.D. would never find out the deception, and if they did there was little chance of locating him among the two billion people on Home Planet.

"You have to make a living somehow," the agent persisted.

"I know nothing but engineering," Donovan said, "and that I will never do."

"Maybe there's some other field in which you could use engineering skills." He thought for a moment, and then reached into his briefcase. "I picked this up on a newsstand. You might like it."

Donovan glanced at the magazine's cover.

"It's the latest thrill—scientific fiction. Maybe with your engineering knowledge you could write a story or two."

• WHEN THE AGENT LEFT,

Donovan read through the magazine, then went out to look up other stories of the same nature. One story offered a time-travel theory which was absurdly inaccurate. Another purported to deal with the inhabitants of Mars, none of which looked at all the way the writers imagined them to be. Donovan read as many as he could find, and was

fascinated by the hopeless incompetence and scientific inaccuracy of the so-called writers. The time-travel story was laughable; even a child could produce a far more exciting tale by describing the Watson-Gorshevich experiments that lead to the discovery of repetitive time-cycles back in 2364.

Why not, he thought to himself. *Why not write these stories of the future? Who could do them better than a man who had come from the future?* These were not engineering journals where accuracy was required, nor would anyone ever act upon the scientific discoveries he might record. Above all, no one would attempt to build any machines which would immediately attract the attention of the C.D. He would do nothing which would in the slightest way affect historic development.

Pressed by the need for money, and fascinated by the possibilities in science fiction, Donovan began to write a story. He employed a pen-name, and avoided the general theory of retrograde-cycle travel backward above time, but limited himself to travelling spirally into the future. He described the mechanism he himself would have to produce in order to get back to Blascomb for anabolism-correction, and produced a fanciful tale regarding life in the year 3,000. The letter from the editor came within a week.

Dear Mr. Donovan:

Enclosed find check for your story, "Turn Backward, O Time!" I have seldom read a more convincing fantasy. One could almost believe that the apparatus you described would actually work. I believe this story will be a science-fiction classic and am placing your original manuscript in my collection. I would appreciate seeing other examples of your work."

When the story appeared in print, several paragraphs describing the construction of the time-machine were omitted by the editor. "Technically unconvincing," they told him; "they mar up the verisimilitude of a great story." "Turn Backward, O Time!" became an instant success.

A few days later, Donovan contributed another story, this time based on actual events on Jupiter which he simply transferred to a different time-cycle on Vega. Vaguely recalling some warning of Blascomb's that while the future could not be changed, it was best to play safe and not draw the attention of the C.D., he twisted and changed all the scientific facts involved. The check for the second story was promptly sent.

Within a few months Donovan, under his pseudonym, which was kept secret, was launched upon his career as a writer of science fiction. Readers praised him for his convincing fantasy and editors competed for his services.

• **M**EMORY OF THE 25TH century gradually faded from his mind as years passed. At times he awoke in horror after nightmares that Crane of the C.D. had finally caught him, but these terrifying dreams became rarer. He had exposed himself repeatedly in fiction. Time and time again he had described actual historical events of the Space Colony Wars in his stories. On one occasion he described the technique for the cure of cancer discovered in 2019. The readers' section of the magazine soon carried letters from doctors who were amused that a writer could present such a simple household remedy and dare suggest that it might be efficacious for cancer.

Donovan was amused by the thought that Crane might be diligently searching for him somewhere in the Renaissance; if so, the C.D. agent's fury must be mounting.

He changed his name and identity every ten years to conceal his gradual return to youth. He had the pleasure of seeing himself hailed as his successor in popularity, as he established new names and let the older ones die out. His excuse to the editors was that he wanted to enter into competition anew, make sure that his name alone was not carrying the stories. He was happy. Sometimes, however, later stories were panned by "fans" as "imitations of

the classics by the greatest stf writer the world has ever known."

Only the aging gentleman who had bought Donovan's first manuscript knew, but the old man signed the checks and said nothing.

In his happiness and self-satisfaction, Donovan became more careless with his stories. If he had been able to outwit Crane and the dreaded C.D., surely he could dash off stories good enough for the poor minds of 20th century science fiction readers!

Then the tide turned. Fan letters in the magazines began really to tear into his fiction; they were third-rate; they lacked imagination. They were ordinary stories written by an ordinary mind; and science fiction required tales written by men whose minds were well ahead of 20th century thought. The day finally came when all the editors began rejecting his stories. First one, then another—and finally every story written received a rejection slip.

Donovan could not understand the reason for the change. A few years ago—or was it decades?—each story of his was labelled a "classic"; now they were not even acceptable. Had science fiction changed so much since his decision to become a writer in 1929? He dared not discuss it with anyone, for he had no friends and he trusted no one. The C.D. was everywhere, but there was one man in whom he had the deepest confidence.

Donovan visited the aging editor and felt sorry for the worn-out old man. He himself had once been like this, but was now free from death. He thought of taking his benefactor with him into the 25th century and saving the editor's life. But suppose Blascomb's laboratory had been captured? Donovan could manage for himself, but it would be cruel to leave the old man in the deadly hands of the C.D. No, it was best to say nothing about rejuvenation to the editor; he would only think Donovan was trying out a story-idea.

"I've been your editor for thirty years," the old man's voice cracked.

His half-blind eyes loomed through thick lenses.

"It's been a long time," Donovan said.

"My—My eyes are not what they used to be," the other said, "A man about 50 years old wrote that great classic, 'Turn Backward, O Time!' He must be about 80 now. But you look only 20. Ah, laddie, you're trying to fool me. You must be his son!"

"That's right," Donovan said quickly, "We have the same name."

"Then that explains it," the other said wearily; "it would break my old heart if a talent like your father's disintegrated. But we came to talk about your stories. No, son, you're not the writer your father was. Your tales lack imagination; there is no originality in them. The ideas are hackneyed, the writing third rate. They sound like poor imitations of the great tales told by your father. There was a man! There was a writer!"

DONOVAN LEFT HIM, keeping the secret of his identity. When he returned to his home he looked in the mirror, and the face of a rose-cheeked 20-year-old youngster stared back at him. Fifty years of happy living in the 20th century! It would soon be necessary to return to the 25th century so that Blascomb could reverse the antibiotic catalytic process that had set him growing younger. It was impossible to stay in his present youthful state much longer. In a few years he would be a child.

With a sigh he walked to his desk, took out paper and pen, and began to draw the diagrams for the apparatus which would send him forward into the 25th century.

For three hours he worked confidently, and then the sweat began to drip from his forehead and his heart began to pound fearfully. "It is not possible," he said, uneasily. "It will all come back to me soon. Now what the devil did Blascomb tell me?"

He had become lazy, and his brain was not used to hard work. He said this to himself but he could not

shake off the sense of fear. He took a cold shower, rubbing himself briskly, then shot a stimulant into his blood stream. Preparing the desk once more, he began to work.

The papers gathered, the pencils broke, and the night gradually turned to morning. The finished sketch of the cycle travellers was basically correct, but the most important operating mechanism was still missing. Try as he could, he was unable to bring it up from his memory.

"By the solar system," he swore, "what is the matter with me? I have forgotten every detail."

He tried to think back. At one time he had known the mechanism thoroughly. As an engineer he was completely familiar with every single plate and tube, but now he couldn't remember anything but the general appearance of the finished machine. Fear spurred his mind as he hunted for a solution. Something was happening to his mind. He began to think of his stories. The same thing had happened there. At one time he remembered every detail of life in the 25th century, and could describe them easily. Now events were dim and he knew now why his recent stories were poor. They were not written from actual memory of the future, but were the ordinary stories one might expect from a 20-year-old boy. The past was dim and memory faded. Blascomb and Crane, Crane and Blascomb, which was the C.D. agent, and what was C.D. anyway?

Enough of the details remained to shock him into an awareness of his desperate plight. The rejuvenation process had worked too well, for Donovan had waited dangerously long. As the body grew younger the tissue cells were consumed and youthful cells replaced them. The process that had worked for body cells did the same for the cells of the brain. Those portions of the brain containing the knowledge and ability of a 70-year-old man were gradually being replaced with new, untrained cells. He had failed to re-educate himself as new cells re-

placed the old, and had come to the brink of disaster. Sufficient intelligence and manual dexterity remained to compensate for that, but in a few years the task would be hopeless.

EXCITEDLY, FOR HE knew his life depended on it, he rummaged through his bookshelves looking for a copy of his first story, "Turn Backward, O Time!" It contained, he remembered, a concise, accurate description of the mechanism for the time machine. The magazine itself was old, the sheets turning brown and the pages breaking. We read the story in haste, vaguely remembering the plot. The actual description of the operating mechanism, he found to his consternation, was missing. "I will cut one or two paragraphs," the editor had said, "*They are not convincing, technically...they lack verisimilitude!*"

Not convincing! If he did not find them he was doomed to become a child, and then a babbling idiot of a baby and would disappear entirely within twenty years. He telephoned the magazine's office and asked for the editor.

"Sorrree," the secretary said, "Mr. O'Sloane is quite ill. The doctors are afraid he might not pass through the night. He's very old, you know."

"Can he speak?" Donovan asked desperately.

"He's had a stroke. Can't say a word. Completely paralyzed, Sorrreee."

Donovan cursed the carelessness that had led him to this difficult position. He knew that O'Sloane kept the originals of his favorite stories in a collection in his office. If O'Sloane died it was possible that some enterprising youthful editor would destroy the old manuscripts in a fit of house-cleaning.

"This is Donovan," he said quickly, "I am trying to locate the original copy of 'Turn Backward, O Time' which O'Sloane has in his files. I must study the original papers; it's extremely important. If there is a substitute editor, will you

ask him to keep an eye open for it."
"Cerrrtainlee."

He sighed and took a taxi to the editorial office. It would be best to get it as quickly as possible. The original manuscript was quite safe. Donovan need only copy the original description. Even if he were no longer able to grasp the theory of it, the machine was still easy enough to build from the description.

Within a few hours he would be back in the 25th century for a reversal. For his next trip back he would choose Ancient Egypt. The 20th century was heading for the Atomic Wars and he was fortunate in being able to escape. After Egypt he would choose the Inca civilization. Did they not have legends of white gods that ruled them? The world was his, and he would be forever young. Immortality was within his grasp. No one could stop him now.

He arrived at the building and rushed up the steps to the editorial office.

"We found the manuscript, Mr. Donovan," the secretary told him brightly, looking twice at the flushed, handsome face.

DONOVAN STEPPED INTO O'Sloane's office. Practically nothing had been touched as yet, for one of the staff editors had just begun to sort a pile of stacked pa-

pers from several cabinets. Donovan recognized the original manuscript of "Turn Backward, O Time!" upon the desk, and hurriedly skimmed through the pages. The description was intact, and while he could not remember why such a machine would work, he knew that it could be built and he could escape.

With a sigh he pocketed the manuscript and introduced himself to the young editor who would probably succeed O'Sloane upon his death.

"Oh yes," the editor with the curious thin smile said, "I have heard quite a bit about you, and have been waiting a long time for this meeting. We've met before, you know."

"Really?" Donovan said. The face did appear familiar, but he could not recall the occasion.

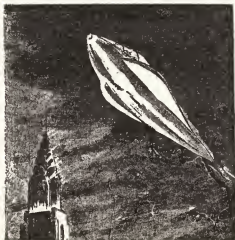
"My name is Edel W. Crane, C.D."

Donovan felt a cold tremor of fear shake his body.

He moistened his lips.

"What do the letters C.D. stand for?"

The pasty-faced young man closed and then locked the door of the office. Walking towards Donovan, the smile no longer there, he told him. Then he did what he had come to do.



A MATTER OF FREQUENCY

by William Tenn

It was the biggest human interest story of all time!



DR. AMADEUS BALLYHOCK pointed with pride across the enormous campus of Meg, Beth, & Hal Thurman University.

"There," he unctuated to the eager group about him. "That completely streamlined building decorated with diagonal stripes. The glory of M.B. & H.T.U. and the very latest addition to our magnificent educational facilities. The Dimenocommunaplex!"

"A whole building," the young woman at his right said in man-pleasing awe. "And one machine!"

The university president smiled affably from her to the rest of his visitors. His broad chest expanded visibly under the expensively-tailored clear-glass shirt he wore. "Yes. One machine."

"The only thing, sir," an extremely handsome fellow who was the star of Tuesday's TV *Tabloid* said uncertainly, "the only thing, doctor, is that the Dimenocommunaplex can hardly be considered educational. I mean—since it won't be used for teaching. I mean—it's a research tool, isn't it? For a Nut?"

All the other journalists looked thoughtful at this and began to scratch well-shampooed heads with extremely well-manicured fingernails.

"You know, Steve," the pretty girl commented slowly. "I think you have something there. If it's for a Nut, it

can't be very educational. It's *Opening New Frontiers* stuff, not the kind of material any sponsor is paying for. When a Nut is involved in a story, you have to take notes, it gets so technical. And once you take notes, what happens to the spontaneity of good TV journalism?"

"There isn't any, Laura," the young man nodded. "Not with notes that you have to read from in order to explain things. I mean—no human interest. Then you might as well get back to dry-as-dust *paper* reporting like they used to have in the old days."

"The days of the Nuts," someone else said. "The twentieth century." Everybody shuddered.

Dr. Ballyhock shook himself abruptly. "Not at all," he said loudly. Then, as they all looked at him, he repeated reassuringly: "Not at all! Not at all!"

"How do you mean, sir?" Steve asked. "Anything with a name like Dimenocommunaplex must be a Nut project."

"Quite. But, first of all, my dear fellow, the Nut involved is under careful guard and the supervision of some of our poorest minds. And may I comment here, parenthetically and with pride, on our faculty and student body, which this year possesses

the very lowest average intelligence quotient of any college in the entire country?"

"You don't say!" Laura looked around enthusiastically. "That is worth a plug on my show. I like to talk about progress. It makes my audience feel we're advancing, kind of. Know what I mean?"

"I certainly do," Dr. Ballyhock told her, smiling warmly at the pleasing curves of her body completely visible through the green-tinted transparent frock she wore. "Now, you journalists will need to take no notes on the Dimenocommunaplex, for the simple but entirely sufficient reason that none of you will even begin to understand its operation. It has been made so thoroughly a Nut Project that only the most degraded Nuts can figure out how it works. Humans, like you, me, and your TV audience, can do no more than describe its operation and effects—if any."

There was a general sigh of relief. Steve came forward and offered his hand. "My apologies, doctor. I really didn't mean to imply that—that—that—well you know."

Dr. Ballyhock nodded. "Quite. A journalist reaching millions of sets cannot be too careful. We have had more than enough of Nut thinking in this country! Now that we understand each other again, may I suggest that the explanation of the educational significance of the Dimenocommunaplex wait until we are all on our scooters and on our way to it? The experiment is due to begin at four-thirty sharp. And an unstable individual is being kept waiting."

THEY MOUNTED THE gaily colored little conveyances again, pulled the beribboned handlebar switches and floated off to the agreeable accompaniment of tiny silver bells clustered on the miniature rear bumpers.

"What is the significance of the Dimenocommunaplex educationally?" the university president began once more from his position in the lead

scooter. "Well, first there is the merely visual interest of the student body in such a very complex piece of machinery. We will give one credit for every hour spent in the building looking at the apparatus. Surely this is not an unpleasant or, should I say, *nutty* way of spending one's compulsory college time? Surely that group entering the Arithmetic Building will prefer it to the hour they must now willy-nilly spend on Long Division and Decimals? These youngsters may go on to acquire a Doctorate in Administration like mine; they will then have to harness and be responsible for the dangerous mental energies of from ten to a hundred Nuts. What better place for them to meet the creatures than in their early college years?"

"And the rest of the educational aspect is communication," Laura said. "At least that's what I read in the university throwaway my studio received. Dimensional communication. What's that?"

"That's a Nut's phrase," Dr. Ballyhock shrugged; "a Nut will therefore have to explain it. My intelligence quotient is well below the hundred-and-twenty danger point. I am happy to say. Dimensional communication? It would seem to imply communication between the dimensions. What good that would do I cannot imagine. But, as with all Nut developments, you never can tell. It might lead to this or it might lead to that. For example, the scooters we are on at the moment are powered by a kind of radiant energy discovered by an astronomical Nut who was fooling around with Cosmic Rays. Another less degraded Nut—one who was almost human, in fact—applied it to vehicles in an engineering design that enabled normal human technicians to manufacture scooters for the rest of us. That's why all the expense we go to in feeding and taking care of Nuts is so very necessary. You never know when one of their attacks of applied science—or even an absolute fit of pure science, for that matter—is going to lead to something useful."

"Or dangerous!" This came from a young matron floating at the edge of the group. "Remember atomic bombs, philosophy, dynamite—all those terrible things Nuts used to make in the old days?" She pulled the pink glassite jacket about her shoulders and shuddered fastidiously.

"The old days. That's just the point. Remember your history, please," Dr. Ballyhock admonished. "First man domesticated life in the form of the lower animal to provide him with food. Then he domesticated matter in the form of machines to do his work for him. Then came his greatest and most recent achievement! He domesticated mind in the form of Nuts to do his *thinking* for him."

They arrived at the striped building with backswept buttresses and alighted. Steve pointed to a barbed-wire-enclosed compound of low and old-fashioned brick buildings directly behind it. "Is that the Nut school, doctor? I mean I know you have one on your campus. I did a human interest expose on it three years ago."

"Yes. Please don't look so upset, ladies. The creatures are not in a dangerously large quantity, and they are very well guarded. Our national educational laws still require universities to maintain at least one college—with separate but equal facilities—for those pathetically high IQ's; but the day is not too far distant, I hope, when they will all be segregated—as most of them already are—in safe and sound institutions under the unblinking supervision of Nut specialists."

● **THE GUARD SWUNG THE** barred doors open at Dr. Ballyhock's nod.

Inside, the building—which was one room and one electronic machine—looked as if a wire-spinning spider had danced out an all-time arachnid master piece within its walls. Banks of transformers awaited action about their compact cores; tubes, spattered like raindrops upon a huge

metal plate in the center of the room, sat energyless and unwinking.

Near the metal plate was a heavily-laden switchboard at which stood a man, unkempt, somewhat hairy, and scowling. Delicate metallic threads encircled both his ankles and disappeared into a hole in the floor: it was evident that as he walked away from the hole, they unwound from a subterranean spool; and, as he came closer to it, the slack was pulled in. Two guards walked with him; the one on his right carrying an efficient little blaster, the one on his left a tiny radio switch which controlled the action of the restraining thread.

"Ladies and gentlemen of the TV tabloids," the president intoned. "This is Physics Nut 6B306, or, as he was entered on his birth certificate, Raymond J. Tinsdale. He was born of entirely normal parents who had no suspicion of his mental flaws until a series of clever childish inventions forced them to a child-test administrator who revealed the truth."

"How awful!" Laura moaned. "It almost makes you not want to have children; it could happen to anybody!"

Dr. Ballyhock nodded gravely. "It could. The consolation is that the freak would be well taken care of for the rest of its life: the parents would never have to see it again. And of course we use them in a kind of occupational therapy upon each other."

"The zoo," said Physics Nut 6B306 bitterly. "The traveling zoo come to look at people. And now they'll want to be entertained. Does it matter to them that my rig isn't even ready?"

"Now, now, now," the president warned. "Don't get obstreperous or we'll have to deprive you of equipment and books for a week. Please start explaining what it is you have here. And guard! Make him put on his shirt. There are ladies present!"

● **AS HE SQUIRMED BACK** into the shirt proffered by the guard, Physics Nut 6B306 shook his head. "The atmosphere itself is air-conditioned; the seasons are con-

trolled; every blasted tinted garment is completely transparent—yet you can't take a single scrap off, no time, no place! What a world!" He beat a fist into an open palm and sighed. "All right. We call this rig a Dime-nocommunaplex. Not because we want to, but we had to call it something and JoJo here thought we should christen it the Ballyhocker. So it's a Dimenocommunaplex. It's intended for interdimensional communication."

"Like the fourth?" Steve suggested brightly.

"No, not like the fourth. There are an infinite number of dimensional universe, coexisting with us but neither in our time nor in our space. They adjoin us on the entropy gradient."

A rustle of inattention and discomfort. "Nut words like entropy," someone muttered. "Entropy *gradient*! Make him start."

"Entropy might be defined as the increasing randomness of energy," Physics Nut 6B306 went on more rapidly as he tried to ignore Dr. Ballyhock's signals. "The rate at which our universe is proceeding to its own space-time death. A universe whose entropy gradient is steeper would be imperceptible to our senses and instruments. In that case, furthermore, all radiation in it would operate at much higher frequencies than in our universe. How *much* higher we can only estimate. And since this is a communicative—"

"Please begin," the president ordered. "We are normal humans and interested in results, not explanations. Theory can come later."

"The problem in communicating with such an adjoining universe," the guarded man went on defiantly, "is chiefly one of finding the correct frequency at which their equivalent of, say, electromagnetic or radio wave patterns occur. Going up past our highest conceivable frequencies with the interdimensional translating device I have developed, we might still create only heat waves in their plenum. Approximation is all we can do each time; continued

careful experimentation must go on. In turn, assuming intelligent creatures in such an adjoining universe, their problem would be to find a sufficiently low frequency (in their terms) with which they could reach us. Again, they would—"

"I'm getting confused," Laura said plaintively. "Make him begin."

Dr. Ballyhock gestured and the guard holding the radio switch poised a hand over it suggestively. Physics Nut 6B306 bit his lip and walked over to the switchboard. He pulled one switch forward a single notch and released a little automatic device which beeped twice, then four times, then eight. A pause and it beeped three times, nine times and twenty-seven.

"Control, that's the answer," the president of M.B. & H.T.U. remarked complacently. "Back in the old days, creatures like that lived in and around normal humanity and wreaked fearful harm, what with constant uncomfortable changes and strange ideas all the time. Progress began with the appointment of lay commissions to supervise science, but we still had a long way to go before we reached our present perfect control. Today just as we use machines to check on other machines and dogs to herd sheep, we use one kind of Nut as a control on other kinds. A Psychological Nut, for example, devised the tests with which we check this specimen periodically to make certain he is not contemplating anything dangerous. A Mechanical Engineering Nut designed the self-winding spool that—"

"Is it over?" Laura asked. "I mean, the experiment?"

"Yes, it's over!" Physics Nut 6B306 told her. "We have transmitted a signal that can be evaluated as the product of mathematically advanced creatures by any intelligent organisms in an adjoining universe that happen to receive it. Now we must wait for a possible reply. The reply may come on any radio frequency; in fact, since the creatures transmitting to us will be approximating our much lower entropy gradient, it may

come as sound. We must be careful—"

"I don't think that was very interesting," Laura told him. "No human interest in that beeping thing. And why did you only pull one switch a teensy-weensy bit?"

"That beeping thing," the Nut explained with the massive patience his kind were so likely to assume in conversation with normal humanity, "gives the square and the cube of two and three respectively, a fact likely to be constant and known in any space-time. I pulled only one switch just the one notch because since we don't know which is a communicable frequency in the universe we are trying to reach, we want to run as little risk as possible of doing any harm. In a week, if there is no answer, we will try another frequency, then another, until we receive a reply."

"Why, if you'd have told me that before, I'd have been able to help you! You have a problem in communication here. That's *my* field," Laura beamed. "Now step aside please, so that I can—"

• **AS SHE STROLLED** toward him, the Nut waved his arms wildly, his face contorting. "No!" he yelled. "You—"

Dr. Ballyhack snapped his fingers, and the unarmed guard moved rapidly. There was a snap and a flash of metallic thread. The Nut lay groaning on the floor near the thread-hole. His feet twitched.

"You must understand," the good doctor told him gently, "that science serves humanity, not vice versa. Laura Bisselrode is one of the most communicative faces and newsiest voices on the TV Sunday Supplement. She will not only bring that necessary ingredient of human interest into your experiment for her audience, but will probably solve your problem."

Physics Nut 6B306 turned his face to the floor and howled.

"Now, first," Laura explained happily, "I'll open all these other switches. There's no point in not

having network coverage when it's available. We might as well use *all* of these—uh, frequencies."

The man on the floor began beating his head against it.

"Then, instead of that nasty old beeping thing, I'd use my lovely, well-trained voice which is adored up and down the nation. Human interest, they used to tell us back in telecasting school Steve, remember?"

"Right!" Steve affirmed. "Human interest before news interest!"

"Hello, *you*," the girl crooned roguishly into the mike. "This is Laura Bisselrode from the other end of the entropy gradient. We have a little universe just like your little universe and we wonder if you'd mind dropping what you're doing for a moment and just tell us in a few simple words just how it feels to—"

She opened her mouth to scream, staggered and dissolved into the writhing floor with the other humans in the building, with the equipment, with the building itself. All up and down the campus of Meg, Beth, & Hal Thurman University, buildings and students and faculty sank into the bubbling soil; all over the planet, mountains toppled, seas solidified and boiled away. The very air roiled and rattled in unmanageable chunks. And then, in that brief instant of communication, all was over and the strangely altered earth was still, the completely lifeless world had assumed a stable form.

Girdling the planet now, like a realistic equator, was a peculiar wavy line which ran across the beds of what had been seas, which undulated past the base of what had been mountains. The wavy line was a message in a language and an orthography which had never before been seen in the universe—a message writ large indeed in the very molecules of matter. Its authors, you see, had been in a great hurry and had had to approximate a frequency.

Rough translation:

"Would you kindly stop doing your equivalent of *quoongling*? It is giving us our equivalent of headaches."

STAR BRIGHT

★ ★ ★ ★ ★

Artificial dreams weren't enough for Andy Brooks. He was determined to find them in reality!

by Bryce Walton

HIS WIFE'S face was ugly; it was shallow and flat like a broken plate. From the balcony of their apartment in the Communal Worker's Center, Brooks turned his gaze and his hate away from her face. He looked at the moon. The disc of dreams was being blotted out by the sea; there were night shadows on the sea, fringed with the white curving foam of breaking tide.

Like the lost Sea of Anghar beside which he had fought through many Sensory Show adventures for the rewarding love of Glora Delar, the most beautiful actress of Lunar-ian Studio City.

He moved toward his wife. She backed away until she was standing with her back against the colonnade; below them the Palisades dropped five hundred feet into the sea-foam.

Her voice had an edge to it, a thin, petty whine. "You're sick, Andy; your face looks funny. You scare me."

He stopped. Her grey Worker's uniform did nothing for her body. "You're ugly," he said. "I'm leaving. You hate my face and I hate yours, so I'm getting out."

She stared. "Andy! That's against the Law. Who ever heard of such a thing?"

"You're hearing it, now," Andy said. "I can't stand living here with you any more. I can't stand anything about you, or this beehive, so I'm leaving."

"But—where can you go, Andy? They'll find you. Andy, listen to me: You've been to Personology. They've examined you. You had that bad accident at the take-off port; you made a mistake installing the fuel capsule



Andy watched the woman fall.

and there was an explosion. Men were killed. What did they say at Personology?"

Brooks stared at the soft-calling Moon. Glora Delar was there tonight. He whispered. "I wonder if she's as tired of being just an actress for my dreams as I am of just dreaming of her?"

"Andy—what did they say at Personology?"

"Oh, a lot of stuff I didn't understand. What it amounts to is that I'm crazy."

"Crazy?"

"Schizophrenia," Andy said. "Fantasy and reality mixed up—that's what the Personologist Chief said. He said that always leads to inefficiency. Remember the axiom, Brooks, he said: *No Worker Makes Mistakes.*"

"That's right, Andy. There's a place for dreaming; and there's a time for working. You kept on thinking about that Glora Delar, even after you got out of the Sensory Shows. You carried pictures of her. Always re-reading those silly letters she sent you, after you wrote that nonsense love note. Your room is filled with pin-ups of her. So you went and had an accident. See, that proves the Personologist was right. You made a mistake; men were killed."

Brooks looked at the Moon. "Two-hundred and forty thousand miles away," he mused, "is paradise."

"Ha!" His wife said. "She wouldn't use you for a doormat; you're just part of another dream she has to act in, that's all. Why, you little runt, she wouldn't give you a second look. Not even a first look. You're a fool even if you aren't crazy!"

Brooks scarcely heard his wife's shrill voice. He had constructed a dream world of his own named Anghar. On this world, he and the great actress had lived through a thousand glorious adventures. Comparing his wife with Glora Delar made the situation impossible. It was the same with his wife, he knew. She had a Sensory Show hero, Clifford Marlowe, with whom no mortal, least of all Andy Brooks, could ever

compare. All right, he had the answer to both of their problems; he was getting out, tonight. He closed his eyes a moment. There was Glora Delar, walking beside the Lost Sea of Anghar. "*Come back, my dear. The armies of Vasca are at the Palace Gates and I pray for your return and the strength of your arms and your love.*"

"Andy! Look at me!"

"I'm tired of looking at you." Andy said and opened his eyes. "And anyway, I have to run away. They're going to give me *directed* Sensory Shows. They're going to select all my entertainment for me, drive all my own dreams out, drive Glora Delar out, and replace my free choice entertainment with their own. He called it directive therapy. It will cure me, make me an efficient Worker again. But it'll mean I won't love Glora Delar anymore."

"Fool," she cried. "It's crazy to love our Actors and Actresses outside the Sensory Shows!"

● **THAT'S WHAT HE TOLD** me," Andy said. "He said that Sensory Shows were planned and provided for the Workers by Personology, just to keep us *happy* and efficient. Our Actors and Actresses are for everyone's benefit, he said; he said it was antisocial for me to want to monopolize Glora Delar for myself."

"That's right, Andy; that's right."

"Oh, he was a great talker, the Personologist was. He said Personology had saved the world from destruction. Once everyone was crazy, he said, running around in a daze, with fantasy and reality all mixed up. Made wars and criminals and neurotics, he said. Now we've got planned, legalized fantasy in the Sensory Shows. A man can be a big-shot on an imaginary world; he can have the support of the most beautiful actresses and actors. Now there's a definite time for dreaming, one for Working. Normally, one never overlaps the other."

"That's absolutely right, Andy; you should see that. I do."

"You're a shallow idiot," Andy said; "you're content to dream. I'm

not; I'm interested in the real Glora Delar. The dreams aren't enough any more, not for me."

"Andy, you always were different. I could never figure you out, and I'm not interested in trying. But all I've got say is you're just not using common sense. What if all us Workers who worship the Actors and Actresses up on Hollywood II stormed the Moon? Took a million rockets and all flew to the Moon! You are crazy, Andy. And think how wonderful the Sensory Shows are! Work a few hours a week, and the rest of the time you can live a beautiful life with actors and actresses who are so good they can make you believe anything."

"Not me," Andy said. "If a dream can't come true, it's no good. So I'm going to the moon, to Studio City; I'm going to find Glora Delar, in person."

Her dull eyes bulged incredulously at him. "Andy! That's forbidden! You'd be breaking a Class-A Law, and you know what happens to them that does that?"

"I'm going," Andy said. "I can sneak aboard a moon rocket; I'm going tonight."

"Andy, I'll tell! I'll not let you do it!"

Andy lunged. Her cries gurgled into silence under his fingers. He lifted her shivering body up over the colonnade. "I figured you would," he said. "And then I figured that this way—you wouldn't."

Her body fell into the darkness. Brooks stood there a long time gazing down at the curling white foam of the breakers. It was like ripping open a black hole and pouring the past into it. He closed up the hole and turned. He could never have submitted to *directed* Sensory Shows, so he had to fight.

In the old days a man could fight for what he loved, even if success was impossible. It was pursuit that counted, the pursuit of happiness that had made men and nations strong—when there *had* been men and nations. Andy's heart beat wildly as he went down the escalator. He might not succeed, but he would have the pleasure of trying the for-

bidden and incredible; he would crash the gates of Studio City on the Moon.

THE PILOT WAS FORWARD
In the cage checking the pre-navigation controls. Brooks slipped into the freight chamber and crawled behind newly loaded packing cases. His skin tingled, and his breathing was rapid.

His audacity had been the big factor in his successfully sneaking aboard the new Moon supply rocket. It was inconceivable that anyone would so much as think of breaking a Class-A Law; the punishment was extreme. Only a few select personnel, other than the Stars, including producers and directors and psychogenic-radial screen projection artists and the like, ever made the flight. And for them, it was always a one-way trip. Only the pilot and the Security Guard accompanying the flight ever returned from the Moon, and they never left the rocket while on the Moon. The rocket always returned immediately to Earth. A veil of glamorous mystery surrounded the Stars and their fabulous Studio City.

Brooks' familiarity with the take-off field, where he had worked as a mechanic and fuelman until his negligence had caused the big blow-up, his knowledge of its arrangement and schedule had enabled him to don a mechanic's uniform in the locker room, get an electrodrill from the supply house for use as an excuse for boarding the rocket. Boarding, he went unnoticed. Mild confusion always reigned about the rocket prior to take-off; no one had noticed that he had not come out of the rocket. And luckily for him, Personology had removed all personnel who had been employed at the field at the time of the disaster, for therapy. Personology always looked out for the Workers.

So Brooks lay in darkness, shivering with excitement that was partly fear. The muffled thunderous explosion engulfed him; the area around him vibrated smoothly. The rocket was lifting. Even protected as he was by the inflated shock-cush-

ion Andy had dug out of a freight room storage locker, the pressure was intense. He blacked out and he knew he had been out a long time when his own groaning awakened him. He grabbed at the edge of a packing case to pull himself erect. The effort smashed him up into the ceiling. Blood ran down his face. He was weightless now, in space; he moved around a little, careful to hold on to something. Then Andy stared at the dim shadow of the bulkhead door; he licked his lips slowly.

The throbbing of his pulse became thunderous. The emptiness in his stomach turned to nausea. This was real adventure, not a dream. But it would have to end somewhere—sometime. He rubbed his lips and sweat ran down his face. What then? A Class-A Law said no one was to go to the Moon. But why was it so important? What was so wrong about actually seeing the Actors and Actresses? About seeing the big production factories where they acted out one's dreams?

His flesh seemed cold and feverish at once. The penalty made him

wince. Condemnation to the Experimental Stations, a fate normally reserved for hereditary and incurable mental defectives. Experiments involving spaceflight which so far no human body had been able to sustain beyond a few million miles; brain surgery; body-structural alterations. There were other experiments not commonly discussed. No one looked forward to breaking a Class-A Law; no one survived the experiments. It was capital punishment that benefited the Order, and therefore it was good.

But not for Andy Brooks. Yet there was no turning back now. Murder was also an infringement of Class-A Law—but that might be considered an accident; anyone could fall from a balcony, or jump.

Andy thought, briefly, of his wife. Very briefly. She was dead. It didn't seem very important whether she was dead or not. She had stood in his way; that had been important. There had never been anything between them anyway but a silent bitter futile hatred for each other's unattractiveness. She loved Clifford

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Marlowe, the great Actor; he loved Glora Delar, the Actress. No mortal could compare with either of them; no one felt any emotional regard for anyone else. Emotion was confined to the Sensory Shows. A time for emotion and dreaming and wish-fulfillment; a time for Working—the two never got mixed up. That's what Personology had told him.

Brooks was trying to figure out what he would do when the rocket hit the Moon, when it dropped into the depth of Theophilus' 18,000 foot, 65 mile-wide crater and into the City of Stars. He was concentrating on that when the bulkhead door began to open.

BROOKS GNAWED AT HIS lips as he crouched behind the door. The Security Guard entered, checking probably for possible weight shift. Holstered to the belt of his gray uniform was a neurotube and a meson blastgun. The continuing cold war with the Eastern Alliance necessitated constant preparedness against possible espi-

onage. That's what Personology said.

As the Guard turned to exit, he saw Brooks. His eyes widened remarkably. His hands moved out as though questioning Brooks' reality. Without thinking, Brooks leaped, his breath breaking harshly. The Guard grabbed wildly at Brooks' wrist and they fell back, scrambling and grunting. The fall broke the Guard's hold; Brooks slammed the drill against the Guard's chest and squeezed the trigger release.

The gentle whirl of the drill was drowned by the Guard's short, incredulous scream of pain. Blood spilled over the drill and ran down Brooks' arm as the Guard rolled lifelessly against the wall, trembled slightly with the dropping, decelerating motion of the rocket.

Brooks leaned against the wall. The silence was vast. He looked at his fingers as he sensed the rocket settling. It was done, really done now; he could not change it back. His wife's body falling into the blackness had seemed a kind of unreal thing, but this was horribly real. The Guard would never worry any

(Turn To Page 122)

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SCIENCE FICTION QUARTERLY

more about dreams, or about reality, either. Maybe he was luckier than most, maybe luckier than Andy Brooks, the mechanic who had stopped machinery no mechanic could repair.

This was murder for which Andy would pay, but that didn't matter. He had broken a Class-A Law when he boarded the moon rocket. There were no degrees of guilt. The thought gave him a kind of freedom inside, a sudden snapping of strings and singing of breaking wires.

He took the neurotube from the Guard. It did things to the nervous system, including paralysis and blackout. Its sustained use could cause death. He didn't take the meson blastgun; it was too lethal, and he was afraid of it. He slipped along the grillmesh corridor and crouched outside the door into the pilot's cage. He stared at the pilot's back, past the pilot into the view screen. The Moon was as big as Earth below, sharp angles of light and shadow, gigantic craters and pools of glaring frozen lava.

The purple-black shadows of Theophilus' walls dropped around the rocket. Far below like a dot of glittering ice was the white-domed brilliance of Studio City. Brooks stared in awed wonderment. Maybe this was a dream, too; it was too fabulous to be real. A Worker—on the Moon! A Worker actually being a part of Hollywood II's legendary marvels! He could see the big production factories where the Stars acted out a man's dreams, where the big psychogenic radial projection screens performed their miraculous function.

On Earth, the millions of ardent fans spent all possible time in the Sensory Shows. A small dark chamber. A beam of light, a whiff of gas, music. You didn't look at it; you were in it. Your wishes took form. Actors and Actresses of your choice supported you. It was touch, taste, action, emotion. It was so real that no Worker cared to dream during Working hours. In the Sensory Show chamber he could be anything, on any one of many possible worlds. He could be a beggar, a King, a soldier, or a god.

STAR BRIGHT

And Glora Delar was your wife, mistress, lover—

But there was a real Glora Delar, too.

A blare of cushioning brilliance spilled over the view screen. The rocket disappeared in a wall of flame; the dome opened; tractor beams clutched the rocket, tilted it, dropped it gently. The prenavigated controls combined with receiving facilities to work out the usual mechanized and perfect routines. The pilot seemed bored. A dolt, Brooks thought; a man regularly making this flight, unmoved by the grandeur and wonderment.

As the rocket was gripped in the big robotractor arms and placed atop a tubular gas duct preparatory to the return take-off, Brooks caught a brief glimpse of the City of Stars. Just like the ads, the many publicity shots of background for the Stars, at home, at work, at play. Wide avenues between smoothly domed buildings, leading off into parks, residential areas. The grass, the trees, the flowers were strange, unlike anything on Earth.

Brooks jerked open the door, pressed the neurotube against the pilot's neck. The pilot turned slowly. His face was unimaginative, white and twisted with shocked surprise; he stared wide-eyed at Brooks.

• **“WHAT—”** THE PILOT whispered.

“Shut up!” Brooks warned. “I’m going out there. I want to see; open the side port doors.”

The pilot’s eyes looked beyond Brooks.

“The Guard’s dead,” Brooks said. “I killed him with an electrodrill. I can keep this neurogun on you until you die too. Open the doors; don’t try to stop me from going out there.”

The pilot choked. “I’ll not try to stop you. Go ahead. Why should I try to stop you?”

“You’d better not try to stop me,” Brooks said. “Let me tell you something. Listen, the Sensory Shows are no good. They create an *illusion* of happiness for us, like dope. Anything that makes an illusion of happiness with no basis in reality—that’s wrong; it’s the same threat to

(Turn Page)

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SCIENCE FICTION QUARTERLY

a man's mind that learning to stop being hungry without eating would be to your body. Isn't that right?"

The pilot's mouth hung wordlessly open.

"I'll tell you what's wrong," Brooks' voice was loud. "A dream has to be possible to find in reality, or it's no good. That's where Personology's wrong. Dreams are no good if they can't come true; what good are wishes and hopes and ambitions if you can't find them except in a Sensory Show? Answer me that!"

"I—ah—" the pilot said.

"I'll answer it," Brooks shouted. "They're no good at all; they're bad. It won't last. People will revolt, or they'll rot sooner or later. Maybe I'm the first and there'll be more; maybe I'm the last and everybody'll rot! I'm in love with Giora Delar, see! Really in love—you understand that? Listen, you stupid dolt, don't tell me she's your favorite Actress, too! It doesn't mean anything. You don't have the nerve to do anything about it. The question is: can she ever be in love with me—a Worker?"

"I...don't...know," whispered the pilot.

"You know what the Personologist said to me?" Brooks screamed. "He told me we'd all be crazy without the Sensory Shows. When you mix dreams up with reality, he said, that's insanity. What's more insane then admitting that the work we do is all we'll ever get out of life? That we can never know anything wonderful, anything we really want, in real life? Can you tell me what could be more insane than that?"

The pilot shook his head. Sweat ran down his nose.

"Don't move or I'll leave the neurotube on you long enough to kill you," Brooks shouted. "Because you don't understand."

"I won't move," the pilot whispered. "I won't try to stop you; I won't say anything. Go back out there and I'll open the door for you. As far as I'm concerned, I don't know anything; I've never seen you." "All right; you're a fool, but I think you're honest."

Already the side freight chamber port was open. Robotractors were un-

STAR BRIGHT

loading and carting the freight onto conveyor belts. Brooks ran into the exit chamber, shut the airtight. The pilot kept his word; the outer door opened. Brooks went down the ladder. He ran; he didn't look back. He didn't have time for that. Somewhere there were a few Guards, stationed here permanently in an isolated barracks building. They would learn of his deeds. But he was free, for a while.

He ran down the long silent avenues and through the strangely silent parks, among the odd unearthly plants and among the alien looking trees and over the paper-like unreal seeming grass.

Above him, the teflonite dome that held in the synthetic atmosphere was like a huge white bubble.

BROOKS WALKED LIKE A drugged man through his dreams-come-true. He stared; his mouth hung open; a warm ecstatic joy filled him. Stars, stars everywhere. There was Ellan Morlan and Clifford Marlowe gliding past in a bubble-shaped shiny white gravcar. They passed so close to Brooks he could see the color of their eyes, the shine of their teeth.

To most women, Clifford Marlowe was the fulfillment of every wish. Ellan Morlan was second only in popularity to Gora Delar. Beautiful people, golden-skinned, perfectly proportioned, like gods and goddesses.

Brooks walked slowly, haltingly, taking in the atmosphere like a thing starved. It was beautiful, here; but there was something wrong. Wrong with the air. It was the silence. It wasn't peaceful; it was too heavy, and he couldn't explain it. There was something of fear in the silence. Nothing moved except the Stars moving across the wide green lawns of paper-like grass, the Stars whirling along the streets or through the air, noiselessly. The Stars that made no sound.

There should be noise, somewhere. There—walking toward him—four of Hollywood II's most demanded supporting players! They were walking right past him! He could touch them! Michael Thorenson, Mara (Turn Page)

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SCIENCE FICTION QUARTERLY

Rosara, Greta Moore, Gil Grendon—they brushed against him as they passed. Brooks stumbled out of their way. He could talk to these people, if he could work up the courage. Maybe later he would have the courage, after the initial daze was worn a little. When he found Glora Delar—

But why hadn't they noticed him? They didn't seem to see him, even know he was here; they would have bumped into him if he hadn't stepped aside.

Now Andy felt lost, terribly small, all at once terribly alone as he wandered up and down the glamour-shrouded avenues, through the parks, the wonderfully intricate playgrounds for the Stars' children. Special beautiful little creatures playing with wonderfully advanced toys—they would grow up to provide dreams for the Sensory Show millions. But now they didn't make any noise. That was odd: Kids usually shouted and laughed when they played. But then Stars' children would be different. Here everything had a strange silent difference. Andy hadn't expected quite this much difference. The silence was smothering, suffocating. Stars, Stars everywhere. The living breathing embodiments of millions of workers' millions of dreams. But no sounds.

He saw no one else of his own class, though that wasn't surprising. No Workers; no Guards; no one in the gray utilitarian uniforms. Just Stars in their beautifully unique, individually styled garments. Just the silent children playing silently like figures moving in an old three-dimensional movie.

DOROTHY DILLON

D walked past, tall and lithe and the color of melting copper, her hair a tingling black cloud around bare shoulders. Andy could have touched her arm. He started to say something, but he couldn't; she didn't seem to see him.

He clenched his hands and started to yell something after her, but managed to control himself. Bitterness and resentment crowded the awed wonderment. Maybe that was the reason Personology strictly forbade

STAR BRIGHT

anyone coming to the Moon. It would break illusions. Maybe the Stars were really just a lot of superior snobs who held their worshippers in contempt.

Maybe. But Glora Delar wouldn't be like that; she was different; he knew. Together, they had shared dream adventures that were his and his alone. Anghar. The Palace of Anghar, the Armies of Vasca. She would be different.

A sense of timelessness carried him along. There was no day or night, by contrast. It was always synthetic day. The bubble overhead, the smooth domed buildings, the walkways and avenues, all radiated a cold ever-shining light. He hadn't taken the Guard's watch. How long had he been walking? He didn't feel hungry or thirsty or tired. There was no measurement in silence, in cold white unchanging light.

He stood by a lake. The scene was like a three-dimensional photograph, the grass under him like rustling confetti. The big lake's surface was like smooth shining glass. Swans glided along the glass like clockwork. Huge water-lilies trembled with a strange regularity of motion in a slight breeze that was always the same.

Then he saw her—Glora Delar, walking along the shore, only a few feet away. A sudden weakness overcame him. His knees gave way and he dropped on a bench. He half rose, sank down. "Glora," he whispered. "Glora—"

She wasn't alone. A man walked with her. The favorite of millions of women who for some reason found Clifford Marlowe not quite perfect. Carl Brittain. In the People's Fan Magazine there had been hints that Glora Delar and Carl Brittain were more than just friends. Brooks had figured it as being more propaganda.

• JEALOUSLY AND HATE

Boiled to muddy fear, fear and self-inadequacy, and Brooks shrank down against the bench, hoping they wouldn't see him. He wanted to crawl into a dark corner, hide somewhere. There was no dark corner; everything was bright and white and blazing white light. Here

(Turn Page)

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SCIENCE FICTION QUARTERLY

no man could hide; no man could
sleep where there was no night.

A sharp shrill whistle dug into his
brain. He jerked around. Far across
the expanse of park a black skycar
came whirring, gliding, sliding to-
ward him. The ultrasonic whistle
sharpened painfully and he knew
this was pursuit.

The pilot hadn't been so honest,
maybe. But that made no difference
now. It had never been anything any-
way that would have gone on for-
ever. No matter when the black sky-
car came for him there would never
have been a place to hide. It didn't
matter now, not after seeing Glora
Delar and Brittain together like this.

But before the Guards picked him
up—

He ran toward the lake. The sky-
car was an elongated shadow over
the glassy water, over the glossy
mechanically moving leaves of the
huge water-lilies, over the backs of
the clock-work swans. The whistle
seemed to split his skull.

"Glora!" he shouted.

He ran toward them. Evidently
they didn't hear him; she didn't
turn; Brittain didn't turn. Brooks'
shout faded across the lake into the
glowing bubble and died.

He grabbed her arm and spun her
around. Carl Brittain walked on, and
Brooks stared into Glora Delar's
eyes. A cold shiver went down his
neck. What was the matter? Where
was the warmth, the love, the pas-
sion, the worship, the dark deep
longing? There was no recognition,
and without that there could never
be any of the other things. However
the big psychogenic radial projec-
tion screens functioned, the Actors
and Actresses probably were never
aware of the individuals they enter-
tained. They entertained *all* the
Workers.

All the Workers.

"Glora, look at me! I wrote the
letters, thousands of fan letters! You
answered them. They were addressed
to me, personally! Me, Andy
Brooks!"

She said slowly. "An—dy—
Brooks—"

Fifty feet above the skycar set-
tled. Swans glided silently across
the lake of glass without noticing

STAR BRIGHT

anything; water-lilies moved in the unchanging breeze. Glora Delar's eyes were on a level with his.

"Don't you know me?" Brooks shouted wildly. "You've got to! Andy Brooks!"

She repeated his name.

"Yes, yes!" Brooks screamed.

"Look at me—Andy Brooks! Remember the Lost World of Anghar! Why dream of each other? Why should we fool ourselves with dreams? I'm here now. I'm real, you're real! I've broken a Class-A Law triply to come here to you. Glora, you've got to see me, talk to me!"

"An—ghar—"

"Listen to me, Glora! The World of Anghar. The Armies of Vasca. Our dream. I was holding the castle Vasca's fleets were laying siege. I was guarding the seawall. How could it have gone on so long without you knowing? It was our dream."

"Vas—ca—"

Sobbing frantically, Brooks turned. Two guards were leaping from their skycar. One of them was shouting, "You there, halt! We've orders to kill you if you resist."

"Get back!" Brooks cried. "Stay right there!" He lifted the neuro-gun. Now he wished he'd brought the blastgun; he'd have blown these Guards and their skycar in a million pieces.

The Guards came slowly toward him along the lake's edge. The swans glided unconcerned. Brooks screamed defiantly. As he fired at one Guard he threw himself to one side. The foremost Guard fell in silent paralysis. Evidently reflex action caused him to accidentally discharge the meson blastgun. A blazing lethal flame mushroomed, and the green lawn crackled to black char in a long smoking swath.

Brooks fired again. The other Guard dodged behind an alien looking tree with orange leaves. Brooks ran wildly. "Glora—wait—"

• **S**HE TURNED AS BROOKS ran past her. Her shoulder struck Carl Brittain and the Actor's body toppled into the lake. He went under without a struggle. The water opened and slid over his body again like thick shiny glue. The swans (Turn Page)

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glided over the spot. Brittain didn't come up; there was no movement in the 'water'.

Brooks ran on after Glora who hadn't stopped walking. Behind him, he heard the Guard shouting. He ran past a parked skycar. Beside it, a couple sat shoulder to shoulder looking over the lake. They seemed oblivious to the commotion.

Brooks grabbed Glora's arm and dragged her toward the skycar. "You'll remember," he sobbed. "I'll see that you remember."

He slid the cowl back. As he started to drag the woman into the seat, he hesitated. He stared into her face. The face he had kissed many times in a thousand thousand adventure-dreams in a hundred imagined worlds. It was the same, but somehow, different. Her eyes returned his stare, unblinking, unrecognizing, unconcerned. Her flesh was strangely unresponsive to his hands. No resistance, no compliance, nothing at all.

The Guard was running and he was near. He stopped, leveled the meson blastgun. "I don't want to kill you," he shouted hysterically. "Give yourself up; I've never killed anything, and I don't want to kill you."

Brooks laughed crazily. "You'll kill her, too, if you fire at me. You'll kill the dreams of millions of your fellow Workers if you kill Glora Delar. Get back there now."

"You're too dangerous," the Guard said; "I've orders to kill you if you don't give yourself up, because you're insane."

Andy Brooks laughed. He tried to push Glora Delar into the skycar. He saw the Guard was going to risk a blast. He spun, dropped her body between them. It had flashed through his mind—if she died with him, then in a way, she would be his forever, only his, and she would never be shared with all the other millions of Workers.

A blazing light burned and blinded him. He fell gasping and crumbling with the deep and lasting agony. He lay in burning fog. He tried to get up. He couldn't move. Through a thickening blur he saw the Guard lurching toward him, his face white and contorted with horror.

Brooks' hand fumbled blindly, touched something. "Glora," he whispered. He slowly twisted his head. He had to do that much.

The skycar was a smoking melting pile, unrecognizable. Beside him lay something else, also smoking; a human outline, a framework of wire and metallic joints, bits of cloth and melting fluid, springs, some burned-out vacuum tubes, a condenser, a charred coil, other parts—all running down through a framework, a skeleton of red-hot wire. Charred hair sizzled in blue flame in the fine mesh of a metal skull. Glora Delar—

The Guard stood over Brooks. His face twisted, his voice came through a dense curtain of time and space and pain. "Been here for years, but I never suspected such a thing. I knew something was queer, but this! This is what they give us—puppets! Marionettes—wire and putty and plastic! She was my favorite actress too—my pin-up girl! just a second ago. Ha, ha, ha, funny isn't it? I fought for her a thousand times in the Lost World of Anghar, against the Armies of Vasca. This is what they give us for dreams!"

Brooks managed to turn his head so he wouldn't have to look at what lay beside him. The two pretending lovers still sat shoulder to shoulder by the lake. Beautiful golden people, staring over the water, romantic lovers. They were oblivious to what had happened. The lake was colored glass, unruffled. The clockwork swans glided over the shiny surface. The perfumed wind blew unchanged through dutifully nodding leaves of the water-lilies.

Above him, the great bubble over Studio City seemed to burst in a million bright glittering shards.

"I'll tell everybody!" the Guard was shouting. "I'll tell all the millions so they'll know!"

Then there was no sound but the wild fading cries of the Guard as Brooks closed his eyes to sleep.

...and this is one dream, he thought, that will be my own, my own.

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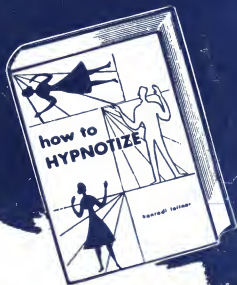
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